

27, 30, 33, 33, 43, 53 | 21, 27, 33 | 28, 37, 46

28, 37, 46 | 6, 4, 2 | 13, 9, 5 | 15, 9, 3

21, 27, 33 | 13, 10, 7 | 33, 37, 41 | 6, 4, 2

**Center Activity** • **23**

You win if you are the first to get four connected rectangles, like:

Play again!

19, 10, 1 | 12, 21, 30 | 12, 9, 6 | 12, 17, 22

12, 8, 4 | 15, 22, 29 | 19, 13, 7 | 12, 8, 4

10, 16, 22 | 19, 17, 15 | 15, 23, 31 | 12, 21, 30

**Center Activity** • **23**

You win if you are the first to get four connected rectangles, like:

Play again!

- Point out that each column has 3 more squares than the column before, and so the rule for the pattern is "add 3."
- Guide students to add the next two columns to the pattern.
- Repeat the activity with a subtraction pattern such as "21, 17, 13, 9, 5."

**Partner Talk** Listen for language that describes a pattern in a number sequence. For example, a student might say, "In the list 2, 8, 14, there is a pattern because the next number is always 6 more than the one before it. So I'll add 6 to 14 to get the next number in the list."

## Levelled Homework

### Reteaching Master

**Reaching** 2-2

**Number Sequences**

A number sequence is a pattern that increases or decreases while following a rule.

What are the next three numbers in this pattern?

36, 42, 48, 54, ...

**Step 1**

Find the pattern.

You can subtract to find the pattern.

$54 - 48 = 6$   
 $48 - 42 = 6$   
 $42 - 36 = 6$

Each number is 6 more than the number before it. So, a rule for the pattern is "add 6."

So, the next three numbers are 60, 66, and 72.

Write a rule for the pattern.

1. 35, 40, 45, ...     2. 43, 39, 35, ...     3. 32, 39, 46, ...

$50; 55; 60;$       $31; 27; 23;$       $53; 60; 67;$   
 add 5     subtract 4     add 7

4. 13, 21, 29, ...     5. 75, 65, 55, ...     6. 51, 45, 39, ...

$37; 45; 53;$       $45; 35; 25;$       $33; 27; 21;$   
 add 8     subtract 10     subtract 6

7. **Critical Thinking** How can you use subtraction to complete an addition pattern? Use the pattern below.

**Subtract to find the difference between the numbers. Since  $46 - 39 = 7$  and  $39 - 32 = 7$ , the rule is to add 7. Examples will vary.**

**23**

### Practice Master

**Practice** 2-2

**Number Sequences**

Find the missing numbers in each pattern. Write a rule for the pattern.

1. 19, 23, 27, ...     2. 32, 26, 20, ...     3. 125, 150, 175, ...

$31, 35;$  add 4      $14, 8;$  subtract 6      $200, 225;$  add 25

4. 8, 15, ... 36     5. 90, 80, ... 50     6. 84, 69, 54, ...

$22, 29;$  add 7      $70, 60;$  subtract 10      $39, 24;$  subtract 15

7. 30, 50, ... 90, ...     8. 65, 56, ... 38, ...     9. -35, -37, -58, ...

$70, 110;$  add 20      $47, 29;$  subtract 9      $46, 79;$  add 11

10. Reasoning The house numbers on Carr Memorial Avenue follow a pattern. The first four houses on the left are 44, 20, and 26. How many more houses are on the left side of the street with numbers less than 30?

**3 houses**

11. Noreen is beginning an exercise program. The first week she walks for 30 minutes each day. The second week she exercises 30 minutes a day and the third week she increases it to 35 minutes a day. If the pattern continues, how long will she exercise each day in the fourth week?

**45 minutes**

12. Explain it. What do you need to do to extend a number pattern? Find a rule for the pattern. Then apply the rule to the last given number to continue the pattern.

13. John said that 52 is part of the pattern below. Mary said that 68 is part of the pattern below. Who is correct?

18, 26, 34, 42, ...

A Neither is correct.     B Both are correct.     C Only John is correct.     D Only Mary is correct.

**23**

### Enrichment Master

**Enrichment** 2-2

**Square Sequences**

For 1-10, find the pattern and fill in the missing numbers.

1.  $1; 9; 18; 27; 36; 45; 54; 63$

2.  $1; 4; 9; 16; 25; 36; 49$

3.  $72; 64; 56; 48; 40; 32; 24$

4.  $42; 37; 32; 27; 22; 17; 12$

5.  $1; 3; 6; 10; 15; 21; 28$

6.  $1; 1; 2; 3; 5; 8; 13; 21$

7.  $99; 92; 85; 78; 71; 64; 57; 50$

8.  $28; 3; 31; 5; 36; 7; 43; 9$

9.  $1; 10; 2; 20; 3; 30; 4; 40$

10.  $2; 4; 3; 9; 4; 16; 5; 25$

**23**

Also available in print

Also available in print

Also available in print

- Sides in the bottom row.
- Guide students through using their drawings of squares to fill in the table for 1, 2, 3, and 4 squares.
- Lead students to see that a rule for the table is "multiply by 4."
- Guide students through extending the table by making appropriate entries for 7 squares and for 36 sides.

Center Activity 2-3

Make up other tables like these. Ask your partner to display the missing numbers with 0-9 tiles.

a	b	c	d	e
f	g	h	i	j

Center Activity 2-3

Make a table to show that every home in each group has two chimneys.

Number of Homes in a Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Number of Chimneys	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40

**Partner Talk** Listen for language that shows an understanding of patterns. For example, a student might say, "8 is above 4, 12 is above 6, and 16 is above 8. I can double the bottom number to get the top number."

**Leveled Homework**

Reteaching 2-3

**Extending Tables**

A table is an organized way to show a pattern. Each pair of values follows some rule. If you can find a rule that works for all the pairs, you can extend the table. What is the missing number in this table?

Weeks	1	2	3	4	5	6	7
Days	7	21	35	42	?	?	?

Step 1  
Find a rule for the pattern. The first 4 weeks are shown. You can divide to find the pattern.  
 $42 \div 6 = 7$   
 $35 \div 5 = 7$   
 $21 \div 3 = 7$   
 $7 \div 1 = 7$   
There are 7 days in one week. The missing number is 56. Complete each table.

Cars	Wheels	Price
1	4	\$53
2	8	\$46
3	12	\$41
4	16	\$37
5	20	\$33
6	24	\$29
7	28	\$25

Step 2  
Use your rule to find the missing number. Multiply the days in 1 week by the number of weeks.  
 $8 \times 7 = 56$

Old Price	New Price
\$53	\$53
\$46	\$38
\$41	\$31
\$37	\$27
\$33	\$23
\$29	\$19

3. Complete each table.

Weight of Salad in Ounces	6	10	14	18
Total Weight of Container in Ounces	9	13	17	21

Also available in print

Practice Master 2-3

**Extending Tables**

Find the missing numbers.

Number of Cats	1	2	3	4	5	6
Money Earned	\$15	\$22	\$33	\$47	\$73	\$83

2. How much money would 9 T-shirts cost?

T-shirts	Cost
1	\$9
3	\$24
5	\$40

3. Strategy Practice: How much more money do you need to buy 6 T-shirts? Explain how you found your answer.  
**\$32; Sample answer: The rule is that each T-shirt costs \$8. Subtract  $10 - 6 = 4$ , and multiply  $4 \times \$8 = \$32$ .**

4. Number Sense: Bob has 3 bookshelves that hold a total of 27 books. He adds a fourth shelf and now has 30 books. If he adds 2 more shelves, how many books can he have in total?  
**54 books**

5. What is the missing number in the table below?

In	3	5	8	15
Out	9	11	14	?

A 21 B 25 C 30 D 45

Also available in print

Application 2-3

**Right Answer, Write Rule**

1. Ashley has 1 teaspoon to measure 5 tablespoons. If 1 tablespoon is equal to 3 teaspoons, how many teaspoons does she need?  
**15 tsp**

Complete the table.

Number of Tablespoons	1	2	3	4	5
Number of Teaspoons	3	6	9	12	15

Write a rule for the pattern.  
**Sample answer: For every tablespoon, multiply by 3 to find the number of teaspoons.**

2. A rule for this table is "add 7."  
Which number does not belong?  
What is the correct number?  
**15 does not belong. 14 is correct.**

Miko's Age	2	5	7
Lauren's Age	9	12	15

3. Jose and his dad went to an aquarium and saw a tank with 5 octopuses. Jose counted 8 legs on 1 octopus. Fernando counted 5 octopuses but 40 tentacles. Write a rule. **Sample answer: Multiply the number of octopuses by 8 to find the number of tentacles.**

Also available in print

- numbers in the second row.
- Next, write a completed table with 6 pairs of numbers related by a different addition rule.
- Have students find a rule for the table.
- Repeat the activity for subtraction and multiplication rules.

**END Report Back** To check understanding, ask a student to repeat and complete this sentence: To find a rule for a table, we look at pairs of numbers in that table and try to find a \_\_\_\_\_ [Pattern]

You want to be the first to get four connected rectangles. Use the numbers 1 through 9 to fill in the empty boxes. Play again!

18	4	56	3
1	72	40	18
72	28	7	2

You want to be the first to get four connected rectangles. Use the numbers 1 through 9 to fill in the empty boxes. Play again!

Divide by 3	Multiply by 8	Multiply by 9	Multiply by 6
Multiply by 4	Multiply by 5	Multiply by 7	Multiply by 9
Divide by 7	Multiply by 6	Multiply by 4	Divide by 3

### Levelled Homework

**Reporting Back** 2-4

Name \_\_\_\_\_

**Writing Rules for Situations**

Write a rule for each situation. It is important to find a rule that works for all pairs of numbers. The rule has to be a rule that works for all numbers in a pair.

Old Price	New Price
\$22	\$27
\$28	\$32
\$32	\$37
\$37	\$42
\$42	\$47
\$47	\$52
\$52	\$57
\$57	\$62
\$62	\$67
\$67	\$72
\$72	\$77
\$77	\$82
\$82	\$87
\$87	\$92
\$92	\$97
\$97	\$102
\$102	\$107
\$107	\$112
\$112	\$117
\$117	\$122
\$122	\$127
\$127	\$132
\$132	\$137
\$137	\$142
\$142	\$147
\$147	\$152
\$152	\$157
\$157	\$162
\$162	\$167
\$167	\$172
\$172	\$177
\$177	\$182
\$182	\$187
\$187	\$192
\$192	\$197
\$197	\$202
\$202	\$207
\$207	\$212
\$212	\$217
\$217	\$222
\$222	\$227
\$227	\$232
\$232	\$237
\$237	\$242
\$242	\$247
\$247	\$252
\$252	\$257
\$257	\$262
\$262	\$267
\$267	\$272
\$272	\$277
\$277	\$282
\$282	\$287
\$287	\$292
\$292	\$297
\$297	\$302
\$302	\$307
\$307	\$312
\$312	\$317
\$317	\$322
\$322	\$327
\$327	\$332
\$332	\$337
\$337	\$342
\$342	\$347
\$347	\$352
\$352	\$357
\$357	\$362
\$362	\$367
\$367	\$372
\$372	\$377
\$377	\$382
\$382	\$387
\$387	\$392
\$392	\$397
\$397	\$402
\$402	\$407
\$407	\$412
\$412	\$417
\$417	\$422
\$422	\$427
\$427	\$432
\$432	\$437
\$437	\$442
\$442	\$447
\$447	\$452
\$452	\$457
\$457	\$462
\$462	\$467
\$467	\$472
\$472	\$477
\$477	\$482
\$482	\$487
\$487	\$492
\$492	\$497
\$497	\$502
\$502	\$507
\$507	\$512
\$512	\$517
\$517	\$522
\$522	\$527
\$527	\$532
\$532	\$537
\$537	\$542
\$542	\$547
\$547	\$552
\$552	\$557
\$557	\$562
\$562	\$567
\$567	\$572
\$572	\$577
\$577	\$582
\$582	\$587
\$587	\$592
\$592	\$597
\$597	\$602
\$602	\$607
\$607	\$612
\$612	\$617
\$617	\$622
\$622	\$627
\$627	\$632
\$632	\$637
\$637	\$642
\$642	\$647
\$647	\$652
\$652	\$657
\$657	\$662
\$662	\$667
\$667	\$672
\$672	\$677
\$677	\$682
\$682	\$687
\$687	\$692
\$692	\$697
\$697	\$702
\$702	\$707
\$707	\$712
\$712	\$717
\$717	\$722
\$722	\$727
\$727	\$732
\$732	\$737
\$737	\$742
\$742	\$747
\$747	\$752
\$752	\$757
\$757	\$762
\$762	\$767
\$767	\$772
\$772	\$777
\$777	\$782
\$782	\$787
\$787	\$792
\$792	\$797
\$797	\$802
\$802	\$807
\$807	\$812
\$812	\$817
\$817	\$822
\$822	\$827
\$827	\$832
\$832	\$837
\$837	\$842
\$842	\$847
\$847	\$852
\$852	\$857
\$857	\$862
\$862	\$867
\$867	\$872
\$872	\$877
\$877	\$882
\$882	\$887
\$887	\$892
\$892	\$897
\$897	\$902
\$902	\$907
\$907	\$912
\$912	\$917
\$917	\$922
\$922	\$927
\$927	\$932
\$932	\$937
\$937	\$942
\$942	\$947
\$947	\$952
\$952	\$957
\$957	\$962
\$962	\$967
\$967	\$972
\$972	\$977
\$977	\$982
\$982	\$987
\$987	\$992
\$992	\$997
\$997	\$1002
\$1002	\$1007
\$1007	\$1012
\$1012	\$1017
\$1017	\$1022
\$1022	\$1027
\$1027	\$1032
\$1032	\$1037
\$1037	\$1042
\$1042	\$1047
\$1047	\$1052
\$1052	\$1057
\$1057	\$1062
\$1062	\$1067
\$1067	\$1072
\$1072	\$1077
\$1077	\$1082
\$1082	\$1087
\$1087	\$1092
\$1092	\$1097
\$1097	\$1102
\$1102	\$1107
\$1107	\$1112
\$1112	\$1117
\$1117	\$1122
\$1122	\$1127
\$1127	\$1132
\$1132	\$1137
\$1137	\$1142
\$1142	\$1147
\$1147	\$1152
\$1152	\$1157
\$1157	\$1162
\$1162	\$1167
\$1167	\$1172
\$1172	\$1177
\$1177	\$1182
\$1182	\$1187
\$1187	\$1192
\$1192	\$1197
\$1197	\$1202
\$1202	\$1207
\$1207	\$1212
\$1212	\$1217
\$1217	\$1222
\$1222	\$1227
\$1227	\$1232
\$1232	\$1237
\$1237	\$1242
\$1242	\$1247
\$1247	\$1252
\$1252	\$1257
\$1257	\$1262
\$1262	\$1267
\$1267	\$1272
\$1272	\$1277
\$1277	\$1282
\$1282	\$1287
\$1287	\$1292
\$1292	\$1297
\$1297	\$1302
\$1302	\$1307
\$1307	\$1312
\$1312	\$1317
\$1317	\$1322
\$1322	\$1327
\$1327	\$1332
\$1332	\$1337
\$1337	\$1342
\$1342	\$1347
\$1347	\$1352
\$1352	\$1357
\$1357	\$1362
\$1362	\$1367
\$1367	\$1372
\$1372	\$1377
\$1377	\$1382
\$1382	\$1387
\$1387	\$1392
\$1392	\$1397
\$1397	\$1402
\$1402	\$1407
\$1407	\$1412
\$1412	\$1417
\$1417	\$1422
\$1422	\$1427
\$1427	\$1432
\$1432	\$1437
\$1437	\$1442
\$1442	\$1447
\$1447	\$1452
\$1452	\$1457
\$1457	\$1462
\$1462	\$1467
\$1467	\$1472
\$1472	\$1477
\$1477	\$1482
\$1482	\$1487
\$1487	\$1492
\$1492	\$1497
\$1497	\$1502
\$1502	\$1507
\$1507	\$1512
\$1512	\$1517
\$1517	\$1522
\$1522	\$1527
\$1527	\$1532
\$1532	\$1537
\$1537	\$1542
\$1542	\$1547
\$1547	\$1552
\$1552	\$1557
\$1557	\$1562
\$1562	\$1567
\$1567	\$1572
\$1572	\$1577
\$1577	\$1582
\$1582	\$1587
\$1587	\$1592
\$1592	\$1597
\$1597	\$1602
\$1602	\$1607
\$1607	\$1612
\$1612	\$1617
\$1617	\$1622
\$1622	\$1627
\$1627	\$1632
\$1632	\$1637
\$1637	\$1642
\$1642	\$1647
\$1647	\$1652
\$1652	\$1657
\$1657	\$1662
\$1662	\$1667
\$1667	\$1672
\$1672	\$1677
\$1677	\$1682
\$1682	\$1687
\$1687	\$1692
\$1692	\$1697
\$1697	\$1702
\$1702	\$1707
\$1707	\$1712
\$1712	\$1717
\$1717	\$1722
\$1722	\$1727
\$1727	\$1732
\$1732	\$1737
\$1737	\$1742
\$1742	\$1747
\$1747	\$1752
\$1752	\$1757
\$1757	\$1762
\$1762	\$1767
\$1767	\$1772
\$1772	\$1777
\$1777	\$1782
\$1782	\$1787
\$1787	\$1792
\$1792	\$1797
\$1797	\$1802
\$1802	\$1807
\$1807	\$1812
\$1812	\$1817
\$1817	\$1822
\$1822	\$1827
\$1827	\$1832
\$1832	\$1837
\$1837	\$1842
\$1842	\$1847
\$1847	\$1852
\$1852	\$1857
\$1857	\$1862
\$1862	\$1867
\$1867	\$1872
\$1872	\$1877
\$1877	\$1882
\$1882	\$1887
\$1887	\$1892
\$1892	\$1897
\$1897	\$1902
\$1902	\$1907
\$1907	\$1912
\$1912	\$1917
\$1917	\$1922
\$1922	\$1927
\$1927	\$1932
\$1932	\$1937
\$1937	\$1942
\$1942	\$1947
\$1947	\$1952
\$1952	\$1957
\$1957	\$1962
\$1962	\$1967
\$1967	\$1972
\$1972	\$1977
\$1977	\$1982
\$1982	\$1987
\$1987	\$1992
\$1992	\$1997
\$1997	\$2002

**Step 1**

Find the pattern. Check the first pair of numbers to see how the first number changed to become the second number. The rule "subtract 5" works for every "subtract 5."

**Step 2**

See if the rule works for all the values.

22 - 17 = 5  
37 - 32 = 5  
28 - 23 = 5  
51 - 46 = 5  
15 - 10 = 5

The rule "subtract 5" works for every pair of values.

Write a rule for the table.

1. Earned	Spent
\$71	\$14
\$30	\$23
\$42	\$95
\$48	\$31
\$59	\$92

2. Teams	Players
3	27
8	72
6	54
9	91
2	18

3. Tickets	Cost
6	\$3
12	\$6
10	\$5
20	\$10

4. Number Sense: Use what you know to find the missing numbers in each table. Write a rule for the table.

Is this correct? Explain.

$25 \times 10 = 250$ , there must be fewer than 250 players.

**Practice Master** 2-4

Name \_\_\_\_\_

**Writing Rules for Situations**

Write a rule for each situation. It is important to find a rule that works for all pairs of numbers. The rule has to be a rule that works for all numbers in a pair.

1. Max's	Carol's
7	13
10	18
14	24
18	29
22	34
26	39
30	44
34	49
38	54
42	59
46	64
50	69
54	74
58	79
62	84
66	89
70	94
74	99
78	104
82	109
86	114
90	119
94	124
98	129
102	134
106	139
110	144
114	149
118	154
122	159
126	164
130	169
134	174
138	179
142	184
146	189
150	194
154	199
158	204
162	209
166	214
170	219
174	224
178	229
182	234
186	239
190	244
194	249
198	254
202	259
206	264
210	269
214	274
218	279
222	284
226	289
230	294
234	299
238	304
242	309
246	314
250	319
254	324
258	329
262	334
266	339
270	344
274	349
278	354
282	359
286	364
290	369
294	374
298	379
302	384
306	389
310	394
314	399
318	404
322	409
326	414
330	419
334	424
338	429
342	434
346	439
350	444
354	449
358	454
362	459
366	464
370	469
374	474
378	479
382	484
386	489
390	494
394	499
398	504
402	509
406	514
410	519
414	524
418	529
422	534
426	539
430	544
434	5

- As each story is built, have students enter the data into a table that has *Number of Stories* in the top row and *Number of Blocks* in the bottom row.
- Have students use the pattern in the table to find the number of blocks in a 5-story tower and in a 6-story tower.
- Repeat the activity with 5 blocks per story.

Use a pattern to make your own set of block towers. Ask your team to make a table to show your pattern.

Class Activity 1

Use a pattern to make your own set of block towers. Ask your team to make a table to show your pattern.

Class Activity 2

Stories	1	2	3	4
Blocks	6	12	18	24

Stories	1	2	3	4
Blocks	3	9	18	30

Blocks	20	40	60	80
Stories	1	2	3	4

Blocks	2	6	12	20
Stories	1	2	3	4

**Partner Talk** Listen for descriptions of patterns in block towers. For example, a student might say, "We are adding the same number of blocks to each story of the block tower, so the numbers in the second row of the table should increase by the same number each time."

## Levelled Homework

### Reaching Master

2-5

Name \_\_\_\_\_

#### Geometric Patterns

Like number patterns, geometric patterns can have figures that grow. To extend geometric patterns follow the same steps as you would for number patterns.

Below is a pattern of squares.

**Step 1**

Look at the pattern. The next figure has \_\_\_\_\_ squares.

Each figure grows by \_\_\_\_\_ square in height and \_\_\_\_\_ square in width.

Each figure grows by \_\_\_\_\_ squares.

**Step 2**

Make the next two figures.

Figure	1	2	3	4	5
Number of Squares	1	4	9	16	25

**Step 3**

Fill in the table.

Figure	1	2	3	4	5
Number of Squares	1	4	9	16	25

**Check students' drawings.**

Draw the next two towers in the table. Find the missing numbers in each table.

Number of Stories	1	2	3	4	5
Number of Blocks	4	8	12		

Length of Sides	1	2	3	4	5
Sum of All Sides	5	10	15		

16: 20

20: 25

3. Number Sense If there were 10 stories in Exercise 1, how many blocks would there be? Explain. There would be 40 blocks since  $4 \times 10 = 40$ .

### Practice Master

2-5

Name \_\_\_\_\_

#### Geometric Patterns

Open the next two figures in the pattern. Find the missing numbers in each table.

1. Number of Stories: 1, 2, 3, 4, 5. Number of Blocks: 5, 10, 15, \_\_\_\_\_

2. Number of Stories: 1, 2, 3, 4, 5. Number of Blocks: 2, 4, 6, \_\_\_\_\_

20: 25

8: 10

3. Length of Each Side: 1, 2, 3, 4, 5. Sides: 3, 6, 9, \_\_\_\_\_

4. Number of Stories: 1, 2, 3, 4, 5. Number of Blocks: 6, 12, 18, \_\_\_\_\_

24: 30

5. Explain It Use Exercise 4. How could you find how many blocks there were in 20 stories? How many blocks would there be? Multiply the number of blocks in one layer by the number of layers:  $20 \times 6 = 120$ .

6. Which is a rule for the table below?

In	3	9	4	7
Out	7	13	8	11

A Add 4  
B Multiply 2  
C Multiply 4  
D Add 5

### Pattern Teasers

2-5

Name \_\_\_\_\_

Below is a pattern made of cubes called "garages".

1. Continue the pattern for 6 garages. How many cubes were used? **20 cubes**

2. How many cubes would be used to make 10 garages? **32 cubes**

3. Write an expression for the number of cubes for any number of garages. Use  $n$  to stand for any number.  **$3n + 2$**

Here is a number pattern called "bull's eye". Use the pattern for 4 and 5.

4. Start with the 2 in the upper left-hand corner. Draw a straight line across the first 3 numbers: 2, 2, 4. Continue the line down from the 4. What are the next 4 numbers? **2, 4, 6, 8**

5. Draw one continuous line that crosses each number only once to complete the pattern. Why do you think "bull's eye" is the best name for this pattern? **The pattern results in a square bull's eye.**

Also available in print

Also available in print

Also available in print

Ask students to identify the unit that has 3 more nickels than dimes.

Remind students that it is also correct to describe the relationship as "3 fewer dimes than nickels."

Then, guide students through modeling a collection of pennies, nickels, and dimes in which there are 12 coins in all, 2 pennies, and 4 fewer dimes than nickels. Point out that the exact number of pennies is known.

**Level 1** You win if you are the first to get four connected exchanges like this:

1 penny in all	2 pennies in all	3 pennies in all	4 pennies in all
3 fewer nickels than dimes	2 fewer nickels than dimes	5 fewer nickels than dimes	1 fewer nickel than dime
1 dime in all	9 pennies in all	8 pennies in all	9 fewer nickels than dimes
Equal number of pennies and nickels	6 more nickels than dimes	3 fewer nickels than dimes	1 fewer nickel than dime
9 pennies in all	8 pennies in all	Equal number of pennies and nickels	9 pennies in all
6 more nickels than dimes	1 more nickel than dime	8 pennies in all	2 fewer nickels than dimes

Level Activity 7

You win if you are the first to get four connected exchanges like this:

2 nickels	7 nickels	2 nickels	3 nickels
2 dimes	5 pennies	4 pennies	3 pennies
7 pennies	9 nickels	9 nickels	5 nickels
3 dimes	1 dime	2 dimes	2 dimes
6 pennies	1 dime	8 pennies	1 dime
5 dimes	3 dimes	2 nickels	1 dime
	8 dimes	2 nickels	1 dime

Level Activity 8

## Level 2 Homework

**Level 2** Report Back To check understanding, ask a student to repeat and complete this sentence: *If we have 5 dimes and 2 nickels, we have 3 fewer \_\_\_\_\_ [Nickels than dimes]*

Name \_\_\_\_\_

**Reasoning 2-6**

**Problem Solving: Act It Out and Use Reasoning**

Izzie has 12 coins. Four of them are six-cent coins. He has 2 more dimes than nickels. How many of each coin does he have? You can use logical reasoning to find the answer. You may be able to determine information that is not told.

<b>What do I know?</b>	<b>What do I need to find out?</b>	<b>What can I determine from the information?</b>
Izzie has 12 coins 4 of the coins are quarters. Izzie has 2 more dimes than nickels.	How many dimes does Izzie have? How many nickels does Izzie have?	If 4 of the 12 coins are quarters, Izzie has a total of 8 dimes and nickels.

You can act it out to find how many dimes and nickels Izzie has. Take 8 two-color counters. Find combinations so that one color will have 2 more than the other. If you try 4 and 4, the difference is 0, so try 5 and 3. It works.

So, Izzie has 4 quarters, 5 dimes, and 3 nickels.

Now, find the number of each kind of object in the collection.

1. Kon's Model Video Collection

5 paintings  
3 more sculptures than paintings  
16 pieces in all

Concert videos = 4  
Paintings = 5  
Sculptures = 7

Pop videos = 3  
Movies = 4

Name \_\_\_\_\_

**Practice Master 2-6**

**Problem Solving: Act It Out and Use Reasoning**

Some find the number of each kind of object in the collection.

1. Sam's Card Collection

8 packs of baseball cards  
3 fewer packs of hockey cards than football cards  
17 packs in all

Baseball cards = 8  
Hockey cards = 3  
Football cards = 6

2. Drew's DVD Collection

4 more anime DVDs than horror DVDs in all  
15 DVDs in all  
Comedy DVDs = 7  
Drama DVDs = 6  
Horror DVDs = 2

3. Strategy Practice Mike is 8 years older than Kyle. Kyle is 12 years old. How old is Mike?  
Mike's age is 20 years old.

4. Marissa has 24 CDs in her collection. Of those CDs, 10 are pop CDs. She has 6 more country CDs than jazz CDs. How many country CDs does she have?  
10 country CDs

5. Curt has 12 models in all. Three of the models are airplanes. Curt has 9 more models of cars than boats. How many models of cars does Curt have?  
7 car models

6. Steve, Lindsey, and Chelsea are the lead singers in a band. They will sing 18 songs. Lindsey will sing 5 songs. Chelsea will sing 5 fewer songs than Steve. How many songs will Steve sing?  
8

Name \_\_\_\_\_

**Enrichment 2-6**

**Town Square**

In the picture, there are several shops and entertainment places. The picture on the building show the prices of items you can purchase and the entertainment you can choose. For each exercise, write how you would spend your money and tell how you would you have left. Make sure you do not spend more than you have!

**Sample answers for 1-4:**

1. You have one \$5 bill, three \$1 bills, 6 quarters, 3 dimes, and 1 penny. Play 12 video games: \$0.80 left

2. You have one \$10 bill, 4 nickels, and 7 pennies. Buy 2 hardcover books and a sketch pad: \$1.47 left

3. You have two \$5 bills, two \$1 bills, 3 quarters, 1 dime, and 5 nickels. See 1 movie and play 10 video games: \$1.50 left

4. You have fifteen \$1 bills, 15 quarters, and 10 dimes. Buy a box of crayons, a sketch pad, and a paint set: \$16.55 left

Also available in print

Also available in print

Also available in print

From right to left, I have students ask themselves, "Which multiple of 10 comes next, and how many do I need?"

Remind students to keep track of the number in each place value when writing different forms.

digit is in the ones place?

1. Four thousand, six hundred eighty has which digit in the ones place?

2. What is the value of the digit 2 in the number 10,217?

3. Make up other questions like these. Ask your partner to display the answers with 0–9 tiles.

Center Activity 4 • 31

digit is in the tens place?

1. Say the least four-digit number with the digit 2 in the thousands place? Which digit is in the thousands place?

2. Say the number that is 100 more than 2,000. Which digit is in the thousands place?

3. Make up other questions like these. Ask your partner to display the answers with 0–9 tiles.

Center Activity 4 • 31

**BOB Report Back** To check understanding, ask a student to repeat and complete this sentence: *A number in standard form can have any one digit in each place, but it can have one, two, or three digits in each \_\_\_\_\_ [period]*

### Reaching Master

Reaching 3-1

#### Representing Numbers


Use a place-value chart to help you write a number in standard form. Write four hundred twenty thousand, three hundred fifty-nine in standard form.

Step 1: Write 420 in the thousands period.  
Step 2: Write 359 in the ones period.

The standard form is 420,359.

Each digit in 420,359 has a different place value and value. The place value of the digit of the hundreds place. This digit has 3 hundreds or 300.

Write each number in standard form.

-  **2,479**  
**75,810**
- 7 ten thousands + 5 thousands + 8 hundreds + 1 ten + 0 ones  
Write the word form and tell the value of the undefined digit for each number.
- 4,632 **Four thousand, six hundred thirty-two; 600**
- 7,129 **Seven thousand, one hundred twenty-nine; 7,000**
- 13,572 **Thirteen thousand, five hundred seventy-two; 2**
- Number Sense. Write a six-digit number with 2,5 in the ten thousands place and 4,2 in the ones place.  
**Sample answer: 252,682**

Center Activity 4 • 31


Also available in print

### Practice Master

Practice 3-1

#### Representing Numbers

Write each number in standard form.

-  **2,263**  
**84,947**
- 8 ten thousands + 4 thousands + 9 hundreds + 4 tens + 7 ones  
Write the word form and tell the value of the undefined digit for each number.
- 76,239 **Seventy-six thousand, two hundred thirty-nine; 6,000**
- 823,774 **Eight hundred twenty-three thousand, seven hundred seventy-four; 700**
- Number Sense. Write the number that has 652 in the ones period and 728 in the thousands period. During a weekend at the Movie Palace Theater, 24,875 tickets were sold. Add the missing digit to the number of tickets sold.  
6. 100 tickets **24,975** 7. 1,000 tickets **25,875**
- Which of the following numbers has a 5 in the ten thousands place?  
A 652,341 B 562,341 C 462,541 D 265,401
- Writing to Explain. Explain how you know the 6 in the number 364,021 is NOT in the thousands place.  
**The 6 is in the thousands period, but is located in the ten thousands place.**

Center Activity 4 • 31

Also available in print

### Changing Places

Enrichment 3-1

Look at the chart. Something has happened to the place value of each starting number. Write the part that is missing in each row. Use the sample to help you.

Starting Number	Change Place	Ending Number
1,426	2 tens less	1,406
73,458	3 thousands more	<b>76,458</b>
<b>496,355</b>	5 ones less	496,300
91,658	<b>1 hundred less</b>	91,758
8,637	6 tens more	<b>8,597</b>
<b>354,311</b>	4 hundred thousands more	754,311
172,618	<b>7 ten thousands less</b>	102,618
342	<b>9 thousands more</b>	9,342
<b>254,018</b>	1 ten less	254,008
121,021	11 tens more	<b>121,131</b>
594,637	1 ten thousand more	<b>604,637</b>
<b>726,432</b>	3 thousands less	723,432
99,999	<b>1 ten more</b>	100,009

Center Activity 4 • 31

Also available in print

chart, for example, 300 or 4,400.

- Have students take turns describing the relationship between the two digits that are the same in the numbers they wrote. For example, "The 5 in the hundreds place is ten times as great as the 5 in the tens place."

- Repeat this process, asking students to write different numbers and describe the place-value relationships of the digits.

7047      740000      7047

47,000	4,707	4,007	407,000	7047
4,070	740,000	74,400	4,007	4,007

How many times as great as the first four connected rectangles, like \_\_\_\_\_, is the fifth connected rectangle, like \_\_\_\_\_?

Center Activity • 3-2

52,000      52,500      52,500      5,250

52,000	52,500	52,500	5,250
5,250	502,500	52,050	52,500

You win if you are the first to get four connected rectangles, like \_\_\_\_\_, like \_\_\_\_\_, like \_\_\_\_\_, like \_\_\_\_\_.

Center Activity • 3-2

**Partner Talk** Listen for language that describes a pattern. For example, a student might say, "The value of the 6 in the tens place is ten times as great as the value of the 6 in the ones place."

## Leveled Homework

**Relating Master**      Enriching 3-2

Name \_\_\_\_\_

**Place Value Relationships**

Name the values of the given digits in the numbers below.

1. the 4s in 440      2. the 8s in 8,000; 800; 80

3. the 6s in 660      4. the 5s in 550; 55; 5

5. the 3s in 330      6. the 9s in 900; 90; 9

7. the 8s in 800; 80; 8

8. the 5s in 5,114      9. the 2s in 2,226; 2,000; 200; 20

10. the 7s in 4,777      11. the 3s in 3,312; 3,000; 300

12. the 9s in 9,999; 9,000; 900; 90

13. What is the relationship between the 6s in the number 6,647?

**The 6 in the thousands place is \_\_\_\_\_ times greater than the 6 in the hundreds place.**

**The 3 in the hundreds place is \_\_\_\_\_ times greater than the 3 in the tens place.**

14. Writing to Explain: In your own words, explain the place-value relationship when the same two digits are next to each other in a multi-digit number.

**Sample answer: When the same two digits are next to each other in a multi-digit number, the digit on the left is ten times greater than the digit on the right.**

15. Which of the following names the value of the 5s in the number 1,557?

A 50 and 5      B 500 and 50      C 5,000 and 500      D 5,000 and 500

**Practice Master**      Practice 3-2

Name \_\_\_\_\_

**Place Value Relationships**

Name the values of the given digits in the numbers below.

1. the 4s in 444      2. the 2s in 2,200; 2,000; 200

3. the 5s in 6,755      4. the 7s in 770; 700; 70

5. the 6s in 6,600; 6,000; 600      6. the 9s in 9,994; 900; 90

7. the 8s in 6,588      8. the 3s in 3,312; 3,000; 300

9. the 1s in 5,114      10. the 2s in 2,226; 2,000; 200; 20

11. the 7s in 4,777      12. the 9s in 9,999; 9,000; 900; 90

13. What is the relationship between the 6s in the number 6,647?

**The 6 in the thousands place is \_\_\_\_\_ times greater than the 6 in the hundreds place.**

**The 3 in the hundreds place is \_\_\_\_\_ times greater than the 3 in the tens place.**

14. Writing to Explain: In your own words, explain the place-value relationship when the same two digits are next to each other in a multi-digit number.

**Sample answer: When the same two digits are next to each other in a multi-digit number, the digit on the left is ten times greater than the digit on the right.**

15. Which of the following names the value of the 5s in the number 1,557?

A 50 and 5      B 500 and 50      C 5,000 and 50      D 5,000 and 500

**Place Value Relationships**      Enrichment 3-2

Name \_\_\_\_\_

In multi-digit numbers, when the same two digits are next to each other, the value of the first digit is ten times greater than the value of the second digit. For example:

907      907      907      907      907

907      907      907      907      907

When the same two digits are separated by one digit, the value of the first digit is one hundred times greater than the value of the second digit. For example:

909      909      909      909      909

909      909      909      909      909

When the same two digits are separated by two digits, the value of the first digit is one thousand times greater than the value of the second digit. For example:

9,009      9,009      9,009      9,009      9,009

9,009      9,009      9,009      9,009      9,009

Name the values of the given digits in the numbers below. Then tell how many times greater the first digit is than the second digit.

1. the 3s in 330      200      300      30

How many times greater? 10

2. the 2s in 202      200      2      100

How many times greater? 10

3. the 6s in 6,600      6,000      600      1,000

How many times greater? 10

4. the 1s in 1,001      1,000      1      800

How many times greater? 100

5. the 8s in 8,485      8,000      80      100

How many times greater? 100

6. the 7s in 5,797      700      7      100

How many times greater? 100

Also available in print

Also available in print

Also available in print

3.7/b2

3,200	2	700	360
500	260	302	3,000

3,562   3,460   3,662   3,062

Play against talk about your strategies as you play.

3,898	>	3,892
1,076	<	3,928
1,601	>	3,982

Play against talk about how you compare two numbers.

**Partner Talk** Listen for explanations. A student should describe how to compare two numbers. For example, a student might say: "The digits in the thousands place are the same, so I have to compare the digits in the hundreds place."

**Leveled Homework**

**Reinhold, Michler**   Rounding   3-3

**Comparing Numbers**

Use these symbols to compare numbers.

< is less than   > is greater than   = is equal to

Compare 1,375 and 1,353.

1,375 > 1,353

Both have the same number of thousands and hundreds. Compare the tens. 1,375 has more tens.

Compare the numbers. Use <, >, or =.

- 36 > 27
- 278 < 285
- 692 > 690
- 1,842 > 1,824
- 4,668 < 4,705
- 7,305 = 7,305
- 1,100 > 998
- 5,436 = 5,436
- 2,323 < 2,333

10. Number Sense Write a 3-digit number that is greater than 699.  
Any number 700 through 999

11. Write a 4-digit number that is less than 2,340.  
Any number 1,000 through 2,339

12. Writing to Explain Every digit in 799 is greater than any digit in 4,325. Explain why 4,325 is greater than 799.  
4,325 has a digit in the thousands place, and 799 does not have a digit in the thousands place.

**Practice Master**   Practice   3-3

**Comparing Numbers**

Compare the numbers. Use <, >, or =.

- 237 < 273
- 130 > 113
- 725 < 739
- 831 > 813
- 926 = 926
- 2,794 > 2,817
- 4,927 > 2,563
- 5,327 < 5,372

Use the table for 9 and 10.

9. Between which pair of cities is the distance the greatest?

Miami, FL	1,701
and Seattle, WA	2,167
Rapid City, SD, to Miami, FL	3,934
Miami, FL, to Seattle, WA	3,934
Portland, OR, to Little Rock, AR	2,217

10. Which distance is greater: from Rapid City to Miami or from Portland to Little Rock? Which digits did you use to compare?

Portland to Little Rock has a greater distance. The thousands digits are the same, so compare the hundreds. Since 1 < 2, then 2,167 < 2,217.

Number Sense Write the missing digits to make each number sentence true.

- 1,017 < 713
- 5,69 > 5,889
- 3,264 = 3,264

14. Which number sentence is true?

A 4,375 > 4,722   C 5,105 = 5,160

B 6,372 > 6,327   D 7,095 < 795

15. Which number is greater than 8,284?

A 8,248   B 8,255   C 8,842   D 8,285

**Count the Students**   Enrichment   3-3

The numbers of students in several school districts are shown in the table.

District	Number of Students
District A	three thousand, four hundred fifty
District B	three thousand, four hundred thirty-five
District C	three thousand, four hundred fifty
District D	three thousand, four hundred forty-five
District E	three thousand, four hundred
District F	three thousand, four hundred twenty-five

Write the number of students in each district in standard form. Then use <, >, or = to compare the number of students in the two districts.

- Number of students:  
District E: 3,400   District B: 3,435
- Compare. District E < District B
- Number of students:  
District C: 3,450   District A: 3,450
- Compare. District C = District A
- Number of students:  
District D: 3,445   District F: 3,425
- Compare. District D > District F

7. Draw a number line beginning at 3,400 and ending at 3,450. Count by 5s. Label each district's population on the number line where it belongs.

Also available in print

Also available in print

Also available in print



- Students write individual digits on each number on index cards.
- Students line up index cards in corresponding place values and compare values from left to right.
- Remind students that comparing values means comparing similar amounts.
- Students ask themselves, "Which is greater?" or "Which is lesser?"

**3760**  
 Say the least number.  A  
 Say the greatest number.  B  
 Say the middle number.  C  
 Order the numbers from least to greatest.  D

**123**  
 Say the least number.  A  
 Say the greatest number.  B  
 Say the middle number.  C  
 Order the numbers from least to greatest.  D

**7125**  
 Say the least number.  A  
 Say the greatest number.  B  
 Say the middle number.  C  
 Order the numbers from least to greatest.  D

216,995   216,990   216,886  
 319,891   319,889   319,889  
 710,810   710,751   710,749  
 935,447   935,441   935,431

227,518   227,512   227,469  
 131,745   131,745   131,736  
 319,917   319,912   319,814  
 472,227   472,235   472,199

Make up four lists of numbers like these.  
 Ask your classmates to discuss the order of the numbers in your lists.

Center Activity • 3-4

**Partner Talk** Listen for conversations that include place-value names and ordinal numbers. For example, a student might say, "The digits in the thousands place are the same in all three numbers, but the digits in the hundreds place are different."

## Leveled Homework

**Reinforcing Models**  
 Name \_\_\_\_\_ Enrichment 3-4

**Comparing Greater Numbers**  
 You can use a number line to compare two numbers. Which is greater, 33,400 or 33,515?  
 Step 1 Plot the first number on a number line.  
 Step 2 Plot the second number on the same number line.  
 Step 3 Compare the numbers. Remember, as you move to the right on a number line, the numbers increase.  
 Looking at the number line, 33,515 is to the right of 33,400.  
 So, 33,515 > 33,400.

You can use place value to order numbers from greatest to least. Write the numbers, lining up place values, on a number line. Circle the greatest and the least, and find the greatest digit. If necessary, compare the other digits.

42,078	Continue comparing	Write from greatest to least
37,544	37,544	42,078
24,532	39,222	39,222
39,222	39,222 > 37,544	37,544
		24,532

Compare. Write > or < for each.

- 3,211 < 4,221
- 35,746 > 35,845
- 355,482 < 535,845

Order the numbers from greatest to least: 62,721; 63,001; 61,435; 63,001; 62,721; 62,500; 61,435.

Number Sense Write 3 numbers that are greater than 12,000 but less than 13,000.  
**Sample answer: 12,001; 12,350; 12,999**

Also available in print

**Practice Master**  
 Name \_\_\_\_\_ Practice 3-4

**Comparing Greater Numbers**  
 Compare. Write > or < for each.

- 854,376 > 845,783
- 6,789 < 9,876
- 59,635 > 59,538
- 374,125 < 743,225

Order the numbers from least to greatest.

- 458,592; 458,671; 439,592; 493,621  
**439,592; 458,592; 458,671; 493,621**
- Number Sense Write three numbers that are greater than 543,000 but less than 544,000. **Sample answer: 543,592; 543,582; 543,582**
- Put the states in order from the least populated to most populated state.  
**Wyoming**  
 Vermont  
 North Dakota  
 Alaska  
 South Dakota
- Which number has the greatest value?  
 A 855,437    B 835,911    C 853,812    D 852,391
- Writing to Explain Tell how you could use a number line to determine which of two numbers is greater.  
**Sample answer: On a number line, the number to the right will be greater than the number to its left.**

**The Five Least Populated States**

State	Population (2010)
Alaska	721,223
North Dakota	675,805
South Dakota	819,161
Wyoming	530,337
Vermont	588,300

Also available in print

**Follow the Leader**  
 Name \_\_\_\_\_ Enrichment 3-4

Find the path to the finish line. You can only travel to a greater number. You cannot move diagonally. Color the boxes as you find your way.

**Start**

1	0	3	17,542	7	1,543	1,727	1,848	1,803
7	10	9	183	1,512	1,600	1,647	1,849	3,722
6	26	15	205	206	955	842	763	7,686
31	40	37	207	444	701	83	8,303	8,103
62	79	112	150	35	697	99	9,265	8,100
17	59	97	3	9,621	14	19,423	15,211	12,964
12,043	703	84	12,652	30,654	7,342	19,494	1,643	1,673
1,334	945	3	7,003	632	946	21,190	23,023	25,901

**Finish**

Also available in print

280,000	270,000	300,000	290,000
900,000	593,210	290,000	11,000

You win if you are the first to get four connected rectangles, like . Play again!

500,820	970,000	590,000	94,600
600,000	700,000	14,100	970,000

You win if you are the first to get four connected rectangles, like . Play again!

the number 4 in the ten thousands column, the number 3 in the thousands column, and so on.

Remind students: When rounding, look at the place to the right of which you are rounding to. If it is 4 or less, round down. If it is 5 or greater, round up.

**Partner Talk** Listen for evidence that a student is following the rules for rounding. For example, a student might say, "If I need to round 6,498 to the nearest hundred, I know that the 4 is in the hundreds place. If I look to the right, there is a 9 in the tens place, so I round up to 6,500."

## Leveled Homework

### Reteaching Master

Name \_\_\_\_\_ Enriching 3-5

**Rounding Whole Numbers**

Round 742,883 to the nearest thousand.

You can use place value or a number line to help you round numbers. On the number line below, 742,883 is between 742,000 and 743,000. The halfway number is 742,500.

742,000      742,500      742,883      743,000

742,883 is closer to 743,000 than to 742,000. Therefore, 742,883 rounds up to 743,000.

When the number you want to round is greater than or equal to the halfway number, round up.

Round to the nearest hundred thousand. Draw a number line on a separate sheet of paper to help you.

- 387,422      100,000
- 124,607      100,000
- 111,022      100,000

Round to the nearest ten thousand. Use place value to help you.

- 276,431      140,000
- 141,173      560,000

Round to the underlined place.

- 654,202      297,500
- 297,499      722,480

Also available in print

### Practice Master

Name \_\_\_\_\_ Practice 3-5

**Rounding Whole Numbers**

Round each number to the nearest ten.

- 16,326
- 413,825
- 517,022
- 84,097

Round each number to the nearest hundred.

- 1,427
- 88,136
- 271,308
- 593,656

Round each number to the nearest thousand.

- 18,266
- 469,614
- 229,930
- 12,569,239

Round each number to the underlined place.

- 12,108
- 370,274
- 333,625
- 534,307

17. What is 881,542 rounded to the nearest hundred thousand?  
 A 800,000    B 600,000    C 700,000    D 780,000

18. Writing to Explain Miss Kennedy is buying pencils for each of her students. She has 10 boxes of pencils. How can she use rounding to decide how many pencils to buy?

She can round the number of students to the nearest ten to see how many boxes of pencils she needs.

Also available in print

### Enrichment Master

Name \_\_\_\_\_ Enrichment 3-5

**Rounding Around**

Use the clues to find each number. Circle your choice.

- The number rounded to the nearest thousand is 1,000. The number is less than 4,000. The number is less than 5,000.
  - 5,095    4,670
  - 5,900    **4,920**
- The number rounded to the nearest thousand is 1,000. The number is less than 1,200. The sum of the digits is 4.
  - 1,269    1,489
  - 1,111**    864
- The number rounded to the nearest thousand is 20,000. The number is less than 20,100. The number is between 19,500 and 20,000.
  - 19,055    20,990
  - 20,398    **19,671**
- Color by number. Round each number to the nearest hundred. If the number rounds to 200, use blue. If the number rounds to 300, use brown. If the number rounds to 300, use yellow. If the number rounds to 700, use green. If the number rounds to 800, use red.

Also available in print

"Left-handed" and the right half "Right-handed." Say that one color represents "Girls" and the other color represents "Boys."

• Have students make an organized list to find the possible combinations. For every combination recorded in their list, have students model it with the manipulatives.

C. How many different numbers can you make with the digits 1, 7, and 9? How many of these numbers are greater than 500? Which numbers are they?

Make up a question that making a list would help to solve. Ask your partner to answer your question.

Make a list to show the sums you can get by adding four consecutive one-digit numbers. Describe some patterns that you can see in your list.

How many different numbers can you make with the digits 1, 7, and 9? How many of these numbers are greater than 500? Which numbers are they?

Make up a question that making a list would help to solve. Ask your partner to answer your question.

**Partner Talk** Listen for language that describes how to organize a list. For example, a student might say, "If we start with 0 and take the numbers in order, our list will be more organized."

**Leveled Homework**

**Reinforcing Master** Repeating 3-6

**Problem Solving: Make an Organized List**

Theme Park Brian has four passes to a theme park. He could choose from includes Ari, Beck, Jeff, and Belinda. How many different combinations are possible?

Step 1: What do you know? There are four friends: Ari, Beck, Jeff, and Belinda. Heave Brian can take

Step 2: What are you trying to find? List the possible combinations. How many different combinations are possible?

Step 3: What strategy will you use? Strategy: Make an Organized List

Answer: There are four combinations.

Look Back and Check: Is your work correct? Yes, because each combination uses Brian. The way the list is organized shows that all ways were found.

Finish solving the problem.

1. Ann, Mara, Jenny, Tina, and Sue are sisters. They are all working at the bookstore each Saturday. How many combinations of two sisters are possible? **10 different combinations**

Also available in print

**Practice Master** Practice 3-6

**Problem Solving: Make an Organized List** Sample lists given.

Make an organized list to solve each problem. Write each answer in a complete sentence.

1. Tonya and Lauren are designing a soccer uniform. They want to use two colors from purple, blue, and silver. How many ways can they choose two colors? **GO, GY, GP, GB, GS, OY, OP, OS, YP, YB, YS, PB, PS, BS; Tonya and Lauren can use 15 different color combinations.**

2. Yancy collects plastic banks. He has three different banks: a pig, a cow, and a horse. How many ways can Yancy choose one bank to take to school? **PCH, PHC, HCP, HPC, CHP, CPH; Yancey can arrange his banks in 6 ways.**

3. Kevin has a rabbit, a ferret, a gerbil, and a turtle. He feeds them in a different order each day. In how many different orders can Kevin feed his pets? **RFGL, RFTG, RGTF, RGFT, RTGF, RTFG; FGTR, FGRT, GRTF, GRFT, GTRF, GTRG; TFRG, TFGR, TRGF, TRFG, TGRF, TGRG; Kevin can feed his pets in 24 different orders.**

Also available in print

**Enrichment Master** Enrichment 3-6

**Problem Solving: Separate the Dots**

Draw line segments inside each circle so that each dot is in a separate area. The 2 ends of each line segment must touch the circle.

1. Draw 2 line segments to separate the dots.

2. Draw 3 line segments to separate the dots.

3. Draw 4 line segments to separate the dots.

Also available in print

Choose two 4-digit numbers. Use mental math to add or subtract those numbers in four different ways.

a.  $101 - 82$       e.  $399 + 298$       f.  $1,000 - 289$   
 b.  $575 + 126$       h.  $900 - 724$       i.  $3,618 + 1,182$

Center Activity 4-4

Choose two numbers. Use mental math to add or subtract those numbers.

a.  $426 + 36$       h.  $500 - 483$       l.  $4,520 + 289$

Center Activity 4-1

from 17 to 38 to make 40. Trade the 10 unit cubes for 1 tens rod to make this exchange clear.

• Tell students to find the sum of the tens rods and unit cubes. [55]

**Partner Talk** Listen for a phrase such as “break apart,” “count on,” or “compensation” as a student explains how to compute with mental math.

**Leveled Homework**

**Reteaching Master** Reteaching 4-1

Name \_\_\_\_\_

**Using Mental Math to Add and Subtract**

There are different strategies for adding and subtracting with mental math.

**Addition Strategies**  
 With compensation you can add numbers in any order.  
 Break apart 158.  
 $158 = 5 + 153$   
 $235 + 5 = 240$   
 $240 + 153 = 393$   
 Add the other part.  
 $240 + 153 = 393$   
 Add the other part.  
 With compensation you can add or subtract to make tens.  
 Add 2 to make a ten.  
 $235 + 158 = 393$   
 $158 + 2 = 160$   
 $235 + 160 = 395$   
 Subtract 2 from the sum.  
 $395 - 2 = 393$   
 Subtract 2 from the sum.  
 Add 2 to make a ten.  
 $200 + 200 = 400$   
 $6 + 10 = 200 + 215$   
 Find the total of what you added.

**Subtraction Strategies**  
 Using compensation  
 $182 - 48$   
 $182 - 50 = 132$   
 $132 + 2 = 134$   
 Since you subtracted 2 too many, add 2 to the answer.  
 Using counting on  
 $407 - 15$   
 $407 + 2 = 409$   
 $409 - 15 = 394$   
 Add 2 to make a ten.  
 $100 + 10 = 200$   
 $200 + 200 = 400$   
 Add 200 to make 400.  
 $6 + 10 = 200 + 215$   
 Find the total of what you added.

Add or subtract. Use mental math.

1.  $67 + 31 = 98$       2.  $85 - 14 = 72$   
 3.  $29 + 43 = 72$       4.  $206 - 78 = 128$

5. Reasoning How can you write  $72 + (8 + 19)$  to make it easier to add?  $(72 + 8) + 19$

6. How many more blue marbles are there than yellow marbles? **276**  
 7. What is the number of red and green marbles? **554**

Use mental math to solve.

6-1

Also available in print

**Practice Master** Practice 4-1

Name \_\_\_\_\_

**Using Mental Math to Add and Subtract**

Add or subtract. Use mental math.

1.  $89 + 45$       2.  $101 - 49$       3.  $400 + 157$       4.  $722 + 158$       5.  $120 - 33$       6.  $900 - 187$   
**135**      **52**      **557**  
**880**      **87**      **713**

7.  $299 + 206$       8.  $878 + 534$       9.  $554 - 59$       10. Reasoning How can you write  $52 + (8 + 25)$  to make it easier to add?  $(52 + 8) + 25$

11. Seema's family went on a trip. The total hotel bill was \$659. The cost of the airfare was \$633. Use mental math to find the total cost for the hotel and the airfare. **\$1,292**

12. One year, 76 people helped at the town cleanup. The next year, 302 people helped. How many more people helped in the second year? Use mental math to find the answer. **226 people**

13. Stanley wants to collect 500 sports cards. So far, he has collected 228 baseball cards and 217 football cards. How many more cards does Stanley need to complete his collection?  
 A. 255      B. 472      C. 645      D. 683

14. Writing to Explain Explain how you could add  $678 + 303$  using mental math.  
**Sample answer:  $678 + 3 = 681$  and  $681 + 300 = 981$ .**

6-1

Also available in print

**Enrichment Master** Enrichment 4-1

Name \_\_\_\_\_

**Mental Puzzles**

Using mental math to add helps you find tens and hundreds. Look at each number in the puzzle board. Find two numbers in the box whose sum equals that number. Use each number only once. Do not use paper and pencil or a calculator.

119	226	511	259	173	28
486	374	375	227	164	314
389	135	72	241	81	328

**Puzzle Board**

100	200	300
$72 + 28$	$119 + 81$	$164 + 136$
400	500	600
$227 + 173$	$241 + 259$	$375 + 225$
700	800	900
$328 + 374$	$486 + 314$	$511 + 389$

2. Explain what methods you used to help you solve the puzzle board.  
**Check students' methods. Sample answer: I looked for ones digits that equal 10 when added together.**

6-1

Also available in print

**Center Activity 4-2**

Play again! Talk about how you round each number.

4,395	5,100	4,100	4,000	3,200
3,629	4,000	4,700	2,900	5,000
3,575				

375 683 415

**Center Activity 4-2**

Play again! Talk about how you round each number.

4,100	4,800	4,000	3,000
4,200	4,300	3,900	4,700

3,500 + 750 4,850 + 375 4,625 + 575

- the other snow ...
- Show students how to use the blocks to round to the nearest ten. Tell them if there are 5 or more single unit cubes to include another tens rod to round to the next ten.
- Have students find both the estimated sum and difference of the two numbers.
- Repeat with other pairs of numbers.

**Partner Talk** Listen for evidence of number sense as a student explains how to round two numbers, using mental math to estimate the sum or the difference of those numbers.

## Leveled Homework

**Reaching the Master** Rounding 4-2

Name \_\_\_\_\_

**Estimating Sums and Differences of Whole Numbers**

Rounding can be used to estimate sums and differences.

To estimate  $1,436 + 422$ :  
 Rounding  
 $1,436$  rounds to  $1,400$   
 $422$  rounds to  $400$   
 $1,400 + 400 = 1,800$

To estimate  $3,635 - 1,498$ :  
 Rounding  
 $3,635$  rounds to  $3,600$   
 $1,498$  rounds to  $1,500$   
 $3,600 - 1,500 = 2,100$

Estimate each sum or difference. **Sample answers are given.**

- $285 + 428 = 700$
- $348 + 122 = 470$
- $562 - 223 = 400$
- $824 - 500 = 300$
- $2,189 + 3,329 = 5,518$
- $1,329 + 877 = 2,206$
- $877 - 475 = 402$
- $5,600 - 400 = 5,200$
- $788 + 212 = 1,000$
- $9,769 - 4,879 = 4,900$
- $65,328 - 14,231 = 51,097$
- $32,910 + 4,085 = 37,000$

13. **Number Sense** Is 676  $\pm$  522 more or less than 400? Explain how you can tell without actually subtracting.  
**More:  $1,000 - 500 = 500$**

14. The fourth graders are helping raise money for the local animal shelter. They hoped to raise \$500. So far, they have raised \$275. How much more do they need to raise? About how much more than \$1,000 have they raised?  
**More:  $500 - 275 = 225$ . They need \$225 more. About \$275 more than \$1,000 have they raised?**

**Practice Master** Practice 4-2

Name \_\_\_\_\_

**Estimating Sums and Differences of Whole Numbers**

Estimate each sum or difference. **Sample answers are given.**

- $627 + 229 = 856$
- $352 - 233 = 119$
- $800 + 2,000 = 2,800$
- $700 + 500 = 1,200$
- $4,283 - 1,673 = 2,610$
- $7,509 + 2,187 = 9,696$
- $24,141 - 2,177 = 21,964$
- $64,099 - 66,555 = -2,456$
- $83,585 + 18,989 = 102,574$
- $22,000 - 8,000 = 14,000$

10. About how much larger is the largest ocean than the smallest ocean?  
**Sample answer: About 142,000 million sq km**

Ocean	Area (million sq km)
Arctic Ocean	14,058
Atlantic Ocean	68,556
Indian Ocean	68,556
Pacific Ocean	155,557

11. About how many million square kilometers do all the oceans together cover?  
**Sample answer: About 316,000 million sq km**

12. Makley is a pilot. Last week she flew the following round trips in miles: 2,020, 1,958, 952, 2,258, and 1,800. How many miles did she fly last week?  
**Sample answer: 8,988 miles**

13. Writing to Explain Explain how you would estimate to subtract 189 from 643.  
**Sample answer: Estimate by rounding; each number to the nearest hundred;  $600 - 200 = 400$ .**

**Canyon Trip** Enrichment 4-2

You are going on a three-day camping trip in the Grand Canyon. The chart shows the weights of some equipment that you will need.

Equipment	Weight (lb)
Water canteen	2
Frost tin	1
Shovel	5
Binoculars	3
Tent	8
Chair	10
Pillow	2
Extra clothes	7
Cooking pots/pans	30
Sleeping cushion	4

**Sample answers for 1-3.**

- You are going to hike alone and carry a backpack. The backpack can hold 25 lb. What equipment will you take on the trip?  
**2 canteens, 3 food tins, compass, tent, tins, compass, tent, extra clothes; Total must be  $\leq 25$  lb.**
- You are hiking with 2 friends. Each will carry 1 backpack. What equipment will you take on the trip?  
**6 canteens, 9 food tins, compass, tent, 3 extra clothes, chair, shovel, pillow, sleeping cushion; Total must be  $\leq 75$  lb.**
- You and 4 friends are taking a donkey on the trip. The donkey can carry 180 lb. You will not take anything on the trip that the donkey will need.  
**Sample answer: 10 canteens, 15 food tins, 2 tents, compass, 5 extra clothes, pots and pans, 5 chairs, and binoculars; Total must be  $\leq 180$  lb.**

Also available in print

Also available in print

Also available in print

# 4 Addition and Subtraction of Whole Numbers

60,000 56,000 54,000 50,000

54,000 57,000 52,000 59,000

51,000 50,000 56,000 53,000

**Partner Talk** You win if you are the first to get four connected rectangles, like  $50,000 + 50,000 = 100,000$ . Play against a partner.

1,251 + 769 = 2,020

6,917 + 1,358 = 8,275

10,688 + 986 = 11,674

713 + 118 = 831

4,617 + 3,224 = 7,841

6,436 + 1,082 = 7,518

**Partner Talk** You win if you are the first to get four connected rectangles, like  $10,000 + 10,000 = 20,000$ . Play against a partner.

**Partner Talk** Listen for an explanation of why two numbers can, or cannot, have a given sum. For example, a student might say, "The sum has 4 in the ones place, so the addends cannot have 8 and 5 in the ones place. We need 9 and 5, 8 and 6, or 7 and 7 in the ones place."

## Leveled Homework

**Reteaching Master** Reteaching 4-3

Name \_\_\_\_\_

**Adding Whole Numbers**

You can add more than two numbers when you line up the numbers by place value and add one place at a time.

Estimate:  $3,000 + 100 + 6,000 = 9,100$

**Step 1**  
Line up the numbers by place value.  
Add the ones.  
Regroup if needed.

$$\begin{array}{r} 3,124 \\ 139 \\ + 5,547 \\ \hline 9,112 \end{array}$$

**Step 2**  
Add the tens.  
Regroup if needed.

$$\begin{array}{r} 3,156 \\ 139 \\ + 5,547 \\ \hline 9,242 \end{array}$$

**Step 3**  
Add the hundreds, then the thousands.  
Continue to regroup.

$$\begin{array}{r} 3,156 \\ 139 \\ + 5,547 \\ \hline 9,242 \\ + 1,369 \\ \hline 10,611 \end{array}$$

9,242 is close to the estimate of 9,100.

**Step 4**  
Add the thousands.  
Regroup if needed.

$$\begin{array}{r} 2,588 \\ 866 \\ + 866 \\ \hline 4,320 \\ + 2,312 \\ \hline 6,632 \end{array}$$

**Step 5**  
Add the tens.  
Regroup if needed.

$$\begin{array}{r} 16,699 \\ 3,311 \\ + 32,494 \\ \hline 52,504 \end{array}$$

52,504 is close to the estimate of 50,000.

**Step 6**  
Add the hundreds, then the thousands.

$$\begin{array}{r} 12,655 \\ 8,222 \\ + 5,532 \\ \hline 26,409 \\ + 3,811 \\ \hline 30,220 \end{array}$$

**Step 7**  
Add the tens.  
Regroup if needed.

$$\begin{array}{r} 12,220 \\ 52,494 \\ \hline 64,714 \end{array}$$

64,714 is close to the estimate of 60,000.

**7. Number Sense** Jill added  $450 + 790 + 123$  and got 1,163.  
Is this sum reasonable?  
**No, the sum should be closer to 1,400.**

Also available in print

**Practice Master** Practice 4-3

Name \_\_\_\_\_

**Adding Whole Numbers**

Add.

- $486 + 4,334 = 4,820$
- $875 + 4,948 = 5,823$
- $890 + 8,947 = 9,837$
- $7,226 + 7,284 = 14,510$
- $1,406 + 10,172 = 11,578$
- $11,372 + 81,797 = 93,169$
- $54,236 + 223 = 54,459$
- $27,887 + 8,709 = 36,596$
- $2,095 + 15,098 = 17,193$
- $836 + 237 = 1,073$
- $7,854 + 237 = 8,091$
- $62,315 + 3,030 = 65,345$
- $53,126 + 15,045 = 68,171$

**9. Number Sense** Luke added  $429 + 899 + 314$  and got 850.  
Is this sum reasonable?  
**No, his answer should be closer to 1,400.**

**10. What is the combined length of the three longest glaciers?**

Glacier	Length (miles)
Lambert-Fisher Ice Passage	320
Noruya Zornika	260
Arctic Inhabite Ice Passage	225
Nimrod-Lanoux-Iorg	160

**11. What is the total combined length of the four longest glaciers in this region?**  
**965 miles**

**12. Which is the sum of  $3,774 + 8,276 + 1027$ ?**  
A 1,251    B 12,152    C 13,052    D 102,152

**13. Writing to Explain** Leona added  $6,541 + 1,482 + 9,879$ .  
Is her answer reasonable? Explain.  
**Leona's answer should be more than 15,000.**

Also available in print

**Enrichment Master** Enrichment 4-3

Name \_\_\_\_\_

**Use Your Head**

Look at the problems and the answer. Without actually adding, decide whether or not the given answer is reasonable. Write Yes or No and explain your answer.

- $794 + 303 = 478$   
**No; The answer should be close to 1,100.**
- $300 + 478 = 778$   
**Yes; The answer should be close to 778.**
- $24 + 50 + 15 = 89$   
**No; The answer should be close to 89.**
- $18,907 + 2,345 + 101,217 = 122,469$   
**No; The answer should be close to 122,469.**
- $31,058 + 18,903 + 70,751 = 120,712$   
**No; The answer should be close to 120,712.**
- $2,941 + 4,750 + 1,532 + 80,623 = 90,846$   
**No; The answer should be close to 90,846.**

Also available in print

the chart, one above the other, with place-value columns aligned. Leave space for regrouping numbers.

- For the ones column, regroup 1 ten as 10 ones, and subtract.
- Next, subtract the tens column digits, and regroup if needed. Do the same for hundreds.

**Make a subtraction puzzle with missing digits.**  
Ask your partner to display the answers with 0–9 tiles.

Center Activity 4-4

$$\begin{array}{r} 739 \\ -1056 \\ \hline \end{array}$$
 and
 
$$\begin{array}{r} 4118 \\ -3070 \\ \hline \end{array}$$

$$\begin{array}{r} 8363 \\ -2489 \\ \hline \end{array}$$
 and
 
$$\begin{array}{r} 13010 \\ -3075 \\ \hline \end{array}$$

**Make a subtraction puzzle with missing digits.**  
Ask your partner to display the answers with 0–9 tiles.

Center Activity 4-4

$$\begin{array}{r} 2817 \\ -4568 \\ \hline \end{array}$$
 and
 
$$\begin{array}{r} 2578 \\ -7216 \\ \hline \end{array}$$

$$\begin{array}{r} 13010 \\ -3075 \\ \hline \end{array}$$
 and
 
$$\begin{array}{r} 13010 \\ -3075 \\ \hline \end{array}$$

**Report Back** To check understanding, ask a student to repeat and complete this sentence: *To subtract 23 from 92 you regroup 9 tens and 2 ones as [8 tens and 12 ones]*

## Leveled Homework

**Reteaching Master** Enrichment 4-4

Name \_\_\_\_\_

**Subtracting Whole Numbers**

Here is how to subtract.

Find  $7,445 - 1,368$ .

Estimate:  $7,000 - 1,000 = 6,000$

**Step 1**

$$\begin{array}{r} 7445 \\ -1368 \\ \hline \end{array}$$

You cannot subtract 8 ones from 5 ones. You must regroup. Regroup 4 tens as 3 tens and 10 ones. Subtract 8 ones from 15 ones.

**Step 2**

$$\begin{array}{r} 6145 \\ -1368 \\ \hline \end{array}$$

You cannot subtract 6 tens from 3 tens. You must regroup. Regroup 6 tens as 5 tens and 10 tens. Subtract 6 tens from 13 tens.

**Step 3**

$$\begin{array}{r} 5145 \\ -1368 \\ \hline \end{array}$$

You cannot subtract 1 thousand from 7 hundreds. You must regroup. Regroup 1 thousand from 7 hundreds.

**Step 4**

$$\begin{array}{r} 4145 \\ -1368 \\ \hline \end{array}$$

**624**

1.  $624$  2.  $759$  3.  $814$  4.  $391$

$$\begin{array}{r} 245 \\ -211 \\ \hline \end{array}$$
 5.  $4772$  6.  $8335$  7.  $4219$  8.  $5216$

$$\begin{array}{r} 3101 \\ -1671 \\ \hline \end{array}$$
 9.  $4,147$  2,840 3,058

9. Estimation Carlos has 2,175 marbles in his collection. Emily has 1,838 marbles in her collection. Carlos says that he has about 1,000 more marbles than Emily. Is Carlos correct? **No; Carlos has about 400 more marbles than Emily.**

Also available in print

**Practice Master** Practice 4-4

Name \_\_\_\_\_

**Subtracting Whole Numbers**

Subtract.

1.  $7,242$  2.  $520$  3.  $848$  4.  $6,797$

$$\begin{array}{r} 7084 \\ -203 \\ \hline \end{array}$$
 5.  $591$  6.  $5,499$

7.  $7,992$  8.  $3,721$

$$\begin{array}{r} 535 \\ -597 \\ \hline \end{array}$$
 9.  $2,795$  10.  $2,599$  11.  $3,262$

12. Which of the following best describes the answer to the subtraction problem below?

A. The answer is less than 1,000.  
B. The answer is about 1,000.  
C. The answer is greater than 1,000.  
D. You cannot tell from the information given.

13. Writing to Explain The Environmental Club's goal is to collect 1,925 cans by the end of the summer. The number of cans they collected each week is shown in the table below. How can you find the number of cans they need to collect in week 4 to meet their goal?

Week Number	Number of cans collected
1	378
2	521
3	839
4	287

Add the number of cans they collected in weeks 1–3, and subtract from 1,925.

Also available in print

**Enrichment 4-4**

Name \_\_\_\_\_

**So Many Decisions!**

The local sports store is holding an anniversary sale. As part of the sale, every 100th customer gets a free shopping cart. If you are the 15,000th customer, do you get a shopping cart with sporting goods and clothing. If the total price of the items is more than \$280 but less than \$300, the shopper keeps everything in the cart.

Here is a list of sporting goods and clothing. Place a check mark next to any item you would put in the cart. Then find your total.

Item	Price	Item	Price
Baseball	\$ 4.99	Bicycle	\$178.99
Football	\$17.95	Terms market	\$ 29.79
Baseball bat	\$ 19.99	Baseball	\$ 1.99
Hockey pack	\$ 8.50	Sweatshirt	\$ 18.99
Baseball glove	\$34.99	Shoes	\$ 41.50
Running shoes	\$11.50	Weight set	\$ 89.99
Baseball cap	\$ 3.99	Baseball bat	\$ 1.99
Sweatshirt	\$ 3.99	Oym ball	\$ 1.99
Football helmet	\$69.00	Baseball bat	\$ 27.99
Golf clubs	\$99.99	Golf balls	\$ 14.50

1. What is your total price?  
**Check students' totals.**

2. Did you win your items?  
**Check students' answers.**

3. How did you decide which items to choose?  
**Check that students used addition and estimation to decide on items that would fall within the price range.**

Also available in print

**h** Which digit is in the ones place?  
Find the difference for 108 - 68.  
Which digit is in the tens place?  
Find the difference for 105 - 9.

**i** How many digits are in the difference for 20,500 - 10,500?

**j** How many digits are in the difference for 2,000 - 2,000?

**k** How many digits are in the difference for 5,000 - 2,000?

**l** How many digits are in the difference for 10,000 - 2,500?

**m** How many digits are in the difference for 10,000 - 997?

**n** How many digits are in the difference for 20,000 - 13,997?

**o** How many digits are in the difference for 21,000 - 10,000?

**p** How many digits are in the difference for 20,500 - 10,500?

**q** How many digits are in the difference for 2,000 - 2,000?

**r** How many digits are in the difference for 5,000 - 2,000?

**s** How many digits are in the difference for 10,000 - 2,500?

**t** How many digits are in the difference for 20,000 - 13,997?

**u** How many digits are in the difference for 21,000 - 10,000?

**v** How many digits are in the difference for 20,500 - 10,500?

**w** How many digits are in the difference for 2,000 - 2,000?

**x** How many digits are in the difference for 5,000 - 2,000?

**y** How many digits are in the difference for 10,000 - 2,500?

**z** How many digits are in the difference for 20,000 - 13,997?

**Center Activity 4-5**  
Play another game. Begin with the next question in the list, or make up your own questions like these. Play the game with your questions.

**h** Which digit is in the ones place?  
Find the difference for 108 - 68.  
Which digit is in the tens place?  
Find the difference for 105 - 9.

**i** How many digits are in the difference for 20,500 - 10,500?

**j** How many digits are in the difference for 2,000 - 2,000?

**k** How many digits are in the difference for 5,000 - 2,000?

**l** How many digits are in the difference for 10,000 - 2,500?

**m** How many digits are in the difference for 10,000 - 997?

**n** How many digits are in the difference for 20,000 - 13,997?

**o** How many digits are in the difference for 21,000 - 10,000?

**p** How many digits are in the difference for 20,500 - 10,500?

**q** How many digits are in the difference for 2,000 - 2,000?

**r** How many digits are in the difference for 5,000 - 2,000?

**s** How many digits are in the difference for 10,000 - 2,500?

**t** How many digits are in the difference for 20,000 - 13,997?

**u** How many digits are in the difference for 21,000 - 10,000?

**v** How many digits are in the difference for 20,500 - 10,500?

**w** How many digits are in the difference for 2,000 - 2,000?

**x** How many digits are in the difference for 5,000 - 2,000?

**y** How many digits are in the difference for 10,000 - 2,500?

**z** How many digits are in the difference for 20,000 - 13,997?

**Center Activity 4-5**  
Roll two number cubes again. Play another game. Begin with the next question in the list.

- Remind students that subtraction is taking away. Take away 8 ones cubes. There are only 5.
- Exchange 1 hundreds flat for 10 tens rods, and 1 tens rod for 10 ones cubes.
- Take away 8 cubes. Take away 8 tens rods. Take away 3 hundreds flats.
- Tell students the answer is the cubes that remain.

**Partner Talk** Listen for an estimation strategy that helps a student to determine the number of digits in the difference. For example, a student might say, "The difference for 30,500 - 10,956 has 5 digits because the answer is close to 31,000 - 11,000, which is 20,000."

**Leveled Homework**

**Reaching Master**  
Subtracting Across Zeros  
Here is how to subtract across zeros.  
Estimate:  $600 - 400 = 200$

**Step 1**  
606  
-377  
---  
229

**Step 2**  
606  
-377  
---  
229

**Step 3**  
606  
-377  
---  
229

**Step 4**  
606  
-377  
---  
229

Since there is a zero in the tens place, you need to regroup. Regroup 1 ten from the hundreds place to the tens place. Now you have 5 tens and 6 ones in the tens place. Regroup 5 tens and 6 ones to 50 ones and 6 ones. Subtract.

You can check your answer by using addition.

Subtract.

1.  $707 - 59 = 649$

2.  $950 - 47 = 903$

3.  $800 - 630 = 170$

4.  $3,506 - 985 = 2,521$

5.  $4,507 - 3,009 = 1,498$

6.  $3,076 - 1,459 = 1,617$

7.  $8,106 - 6,589 = 1,517$

8.  $6,083 - 4,592 = 1,491$

9. Reasonableness: Lexi subtracts 9,405 from 11,138. Should her answer be greater than or less than 2,000? Explain.  
**Less than; 405 is greater than 138, so you would regroup to subtract.**

**Reaching 4-5**  
Complete the problem. Show your work.

**Practice Master**  
Subtracting Across Zeros  
Subtract.

1.  $906 - 45 = 861$

2.  $3,091 - 1,351 = 1,740$

3.  $4,000 - 2,557 = 1,443$

4.  $800 - 139 = 661$

5.  $1,070 - 477 = 593$

6.  $8,904 - 5,308 = 3,596$

7.  $3,007 - 641 = 2,366$

8.  $623 - 320 = 303$

9.  $7,403 - 3,254 = 4,149$

10.  $5,057 - 2,887 = 2,170$

11.  $6,790 - 1,298 = 5,492$

12. Robert set a goal to swim 1,000 laps in the local pool. He has currently finished 442 laps. How many more laps does he have to swim in order to meet his goal?  
A 332    B 358    C 488    D 472

13. Writing to Explain: If  $694 - 72 = 622$ , then  $622 + 72 = 694$ . Explain the process of checking your work.  
**Add to check the difference because addition and subtraction are inverse operations. They undo each other.**

**Practice 4-5**  
Complete the problem. Show your work.

**Transportation Conclusions**  
Each person made a conclusion about the data in the table. Think about each person's conclusion. Do you agree? Explain.

Country	Number of Airports	Length of Railways (km)
Australia	455	47,738
Finland	148	3,741
France	501	29,085
Germany	554	47,201
Hungary	46	7,937
Japan	175	23,558
New Zealand	118	4,128

**Sample answers**  
are given.

1. Kylie compared the length of railways in Australia and Japan. She concluded that Australia has 24,282 kilometers of railway more than Japan.  
**No, Kylie subtracted incorrectly. Australia has 24,182 kilometers more railway.**

2. Theona compared the number of airports in Germany and Hungary. She concluded that Germany has 508 more airports than Hungary.  
**Yes, Franklin subtracted correctly and his conclusion is correct.**

3. Theona concluded that France has 14 more airports than Hungary, New Zealand, Finland, and Japan altogether.  
**Yes, Theona subtracted correctly and her conclusion is correct.**

**Enrichment 4-5**  
Complete the problem. Show your work.

Also available in print

Also available in print

Also available in print



**Money**

Money earned in one month: \$

Money spent in that month: \$

Money left over at the end of that month: \$

Find 10 more ways to complete the picture.

Generativity \* \* \*

**Money**

Money earned in one month: \$150

Money spent in that month: \$

Money left over at the end of that month: ?

Make up your own picture with spaces for files. Ask your team members to write an equation and answer the question.

Generativity \* \* \*

**Partner Talk** Listen for reasons why students cannot use a number to complete the picture.

## Leveled Homework

**Reaching Master** Rethinking 4-6

**Problem Solving: Draw a Picture and Write an Equation**

Read the question and follow the steps to develop a problem-solving strategy.

1. In the morning, a grocery store had 28 apples on display. By the end of the day, 11 apples had been purchased. How many apples were left?

**Step 1: Read/Understand**

- What information do you need to solve the problem? (There were 28 apples now there are 11 fewer apples.)
- Find the information you need to solve the problem. (The number of apples that are left.)

**Step 2: Plan**

- Draw a picture that shows you the problem, and write an equation to solve.

28 in all

11	?
----	---

**Step 3: Solve**

- Check to make sure you understand the problem you are trying to solve.
- Solve the equation to answer the problem. (28 - 11 = 17; 17 apples were left.)

**1. Strategy Practice** **25 flakes**

Estes got 12 flakes at the bank before school and 13 more when she got home. How many flakes did she put in the bank that day? Use the steps to answer the question.

**Step 1:**

- What information do you need to solve the problem?
- Write an equation and solve it.

**Step 2:**

- Draw a picture.

**Step 3:**

- Write an equation and solve the equation.

Solve the following problems. Draw pictures to help you.

2. Roy is reading a book that is 68 pages. He has read 24 pages so far. How many more pages does he have to read to finish the book?

3. There are 29 students in the school band. Only 12 students are in the band now. How many students are in the band now?

4. Jayce's teacher gave her a box of 98 pens. She gave 17 of the pens to her classmates. How many pens were left in the box?

Also available in print

**Practice Master** Practice 4-6

**Problem Solving: Draw a Picture and Write an Equation**

For exercises 1 through 4 write an equation and solve. Use the picture to help you.

1. A remote control car has a speed of 5 feet per second. How many feet will the car travel in 30 seconds?  $5 \times 30 = 150$

2. Danny has 45 minutes to take a math test. He has already taken the test for 19 minutes. How many minutes does he have left to finish it?  $45 - 19 = 26$  minutes

3. While shopping, Janet bought a shirt for \$8, a pair of jeans for \$22, mittens for \$5, and a hat for \$10. How much money did Janet spend?  $\$8 + \$22 + \$5 + \$10 = \$45$

4. The 17th anniversary of the completion of the Erie Canal was in the year 2000. If it took 8 years to dig, how many years did the digging of the Erie Canal begin?  $2000 - 175 - 8 = 1817$

5. The CD has 12 pages. Write an equation for the length of the whole CD. Draw a picture to help you.

6. Writing to Explain It takes 55 minutes to drive to her store. She then drove another 10 minutes. What do you need to do to find the amount of time she has left to drive? **Add the time she has already driven and subtract it from the total time it takes to get there.**

Also available in print

**Flying High** Enrichment 4-6

City	Paris	London	Chicago	Atlanta
Boston	605	807	605	807
Dallas	721	1,555	796	605
Denver	1,208	1,767	801	604
Detroit	505	1,502	233	1,135

Use the air distance chart above to write a number sentence for each problem. Then solve.

1. How many more miles does it take to get from Denver to Atlanta than to get from Detroit to Atlanta and Chicago to Atlanta combined?  $1,208 - (505 + 606) = 97$  mi

2. Jorge flew from Dallas to Detroit, from Detroit to Denver, and from Denver back to Dallas. How many miles did Jorge fly altogether?  $(982 + 1,135) + 654 = 2,771$  mi

3. Maria flew from her home city of Boston to Atlanta, back home to Boston, and then back to Atlanta. How many miles did she fly altogether?  $(946 + 946) + 946 = 2,838$  mi

4. How many more miles is it to fly round-trip between Dallas and Boston than between Denver and Chicago?  $(1,555 + 1,555) - (901 + 901) = 3,110 - 1,802 = 1,308$  mi

Sample answers are given.

Also available in print

them to find the product. [300]

- Have one partner make up a " $\_\_ \times 10$ " or a " $\_\_ \times 100$ " multiplication problem for the other partner to build an array and find the product. Then have the partners switch roles.

a	b	c	d	e
f	g	h	i	j

Make up other number sentences like these. Ask your partner to display the answers with 0–9 tiles.

Center Activity 4 • 51

a	b	c	d	e
f	g	h	i	j

Make up other number sentences like these with missing digits. Ask your partner to display the answers with 0–9 tiles.

Center Activity 4 • 51

**Partner Talk** Listen for a description of an array. For example, a student might say, "There are 8 rows with 10 in each row; 8 groups of 10 is 8 times 10."

## Leveled Homework

### Reaching Master

Enrichment 5-1

Name \_\_\_\_\_

#### Arrays and Multiplying by 10 and 100

Find each product.

- Find  $3 \times 10$ .  
 $10 + 10 = 20$   
 $100 + 100 + 100 = 300$   
 There are three groups of 10.  
 Add 10 three times.  
 Multiply 3 groups of 10.  
 $3 \times 10 = 30$
- Find  $4 \times 10$ .  
 $100 + 10 + 10 + 10 = 130$   
 $100 + 100 + 100 = 300$   
 There are three groups of 100.  
 Add 10 three times.  
 Multiply 3 groups of 100.  
 $3 \times 100 = 300$
- Reasonableness: Michael used addition to find  $9 \times 100$  and he said the product was 90. What did he do wrong?  
**Sample answer: Michael added by 10s instead of by 100s.**
- Draw two sets of arrays to represent  $6 \times 10$  and  $5 \times 100$ . Then show how to use addition to find each product.  
 $10 + 10 + 10 + 10 + 10 = 50$   
 $+ 100 + 100 = 200$   
 $50 + 200 = 250$   
 $6 \times 10 = 60$   
 $5 \times 100 = 500$

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### Practice Master

Precise 5-1

Name \_\_\_\_\_

#### Arrays and Multiplying by 10 and 100

Find each product.

- $5 \times 10 = 50$
- $2 \times 100 = 200$
- $3 \times 10 = 30$
- $3 \times 100 = 300$
- $6 \times 10 = 60$
- $6 \times 100 = 600$
- Reasoning: What whole number could you use to complete  $\square \times 100 = \square00$  so that  $\square00$  is greater than 400 but less than 600?  
 A 70 B 100 C 107 D 700
- Mr. James does 100 sit-ups every morning. How many sit-ups will he do in 7 days?  
 A 70 B 100 C 107 D 700
- Writing to Explain: Jackie has 10 groups of pennies with 3 pennies in each group. Carlos has 5 groups of pennies with 100 pennies in each group. Who has more pennies? Explain how you know.  
**Sample answer: Jackie has  $10 \times 3$  or 30 pennies. Carlos has  $5 \times 100$  or 500 pennies. Since  $500 > 30$ , Carlos has more pennies.**

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### Enrichment Master

Enrichment 5-1

Name \_\_\_\_\_

#### Geometric Numbers

The pattern of dots represents the first four triangular numbers: 1, 3, 6, and 10. They are called triangular numbers because they can be arranged in triangular arrays.

- Draw the next two groups of dots in the pattern above. Then write the number sentences underneath your drawings to show how you found the next two triangular numbers.  
**See above for answers.**
- Is the 7th triangular number 27? Explain why or why not.  
**No; Sample answer: The 6th triangular number is 21. The 7th pattern of dots will have 21 dots and a seventh row with 7 dots. So,  $21 + 7 = 28$ , not 27.**
- Describe how to use the pattern above to draw the dots for the 10th triangular number.  
**Sample answer: The 10th triangular number will have 10 rows of dots. The first row will have 1 dot, the second row will have 2 dots, and so on. The tenth row will be the last row and it will have 10 dots.**
- Find the 15th triangular number without drawing any dots. Explain how you found your answer.  
**Sample answer: The 16th triangular number will have 16 rows of dots.  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15 + 16 = 136$ . So, the 16th triangular number is 136.**

Also available in print

is represented.  $[5 \times 2 = 10]$  For example, a student might say, "Five times two equals 10," or "Five groups of two is 10."

- Have students replace the 2 ones blocks with 2 tens blocks. Ask them what multiplication sentence is represented.  $[5 \times 20 = 100]$
- Have students replace the 2 tens blocks with 2 hundreds blocks. Ask them what multiplication sentence is represented.  $[5 \times 200 = 1,000]$

**Center Activity 4** Play again! Talk about how you find the product.

2	1,600	1,000	320	250	500
8	3,200	2,500	800	200	400
4					40

**Center Activity 5** Play again! Talk about your strategies as you play.

720	$7 \times 800$	$9 \times 80$	$500 \times 8$	$9 \times 800$	7,200
420	$5 \times 600$	$800 \times 6$	$9 \times 60$	$60 \times 7$	300
5,600					1,000

**Partner Talk** Listen for a complete explanation. For example, a student should say, "4 × 500 has 3 zeros in the product; you multiply 4 × 5 = 20, and then you write two zeros after the 20 because 500 is a multiple of 100."

## Leveled Homework

**Retrieving Number** Researching 5-2

Name \_\_\_\_\_

**Multiplying by Multiples of 10 and 100**

Patterns can help you multiply by numbers that are multiples of 10 or 100.

$3 \times 5 = 15$        $2 \times 4 = 8$        $5 \times 7 = 35$   
 $3 \times 50 = 150$        $2 \times 40 = 80$        $5 \times 70 = 350$   
 $3 \times 500 = 1,500$        $2 \times 400 = 800$        $5 \times 700 = 3,500$

To find each of the products above, first complete the basic multiplication fact. Then multiply the product by the factor that is a multiple of 10. If the product ends in a zero, the answer will have an extra zero. For example:

First find  $4 \times 5$ .       $4 \times 5 = 20$   
 Then, count the number of zeros in the multiple of 100.  
 Write 2 zeros after the product of the basic multiplication fact. So, there are 2 zeros in the product.      2,000

Find each product. Use mental math.

1.  $8 \times 80 =$  640      2.  $6 \times 60 =$  360  
 3.  $7 \times 90 =$  630      4.  $5 \times 200 =$  1,000  
 5.  $3 \times 40 =$  120      6.  $7 \times 200 =$  1,400  
 7.  $500 \times 6 =$  3,000      8.  $600 \times 9 =$  5,400  
 9.  $3 \times 800 =$  2,400      10.  $600 \times 7 =$  4,200

11. Number Sense To find  $8 \times 600$ , multiply 8 and 6, then write 2 zeros to form the product.

Also available in print

**Practice Master** Practice 5-2

Name \_\_\_\_\_

**Multiplying by Multiples of 10 and 100**

Find each product. Use mental math.

1.  $6 \times 70 =$  420      2.  $80 \times 2 =$  160  
 3.  $40 \times 9 =$  360      4.  $20 \times 3 =$  60  
 5.  $4 \times 500 =$  2,000      6.  $300 \times 9 =$  2,700  
 7.  $8 \times 600 =$  4,800      8.  $7 \times 400 =$  2,800  
 9.  $5 \times 200 =$  1,000      10.  $800 \times 5 =$  4,000  
 11.  $6 \times 800 =$  4,800      12.  $400 \times 3 =$  1,200

13. Number Sense How many zeros will the product of  $7 \times 500$  have? 2 zeros

Mr. Young has 30 times as many pencils as Jack. The whole school has 200 times as many pencils as Jack. If Jack has 2 pencils, how many pencils do the following have?

14. Mr. Young? 60 pencils      15. The whole school? 400 pencils

16. Find  $3 \times 400$ .  
 A. 120      B. 1,200      C. 12,000      D. 120,000

17. Writing to Explain Wendt says that the product of  $5 \times 400$  will have 2 zeros. Is she correct? Explain.  
**No, Sample answer: There is 1 zero from  $5 \times 4$  and 2 zeros from 400. She forgot the zero from the basic fact.**

Also available in print

**Decode and Solve** Enrichment 5-2

Use number sense to decode the value of each shape.

1.  $6 \times \square = 480$        $\square \times 200 = 1,000$   
 2.  $\square \times \triangle = 640$        $\square \times \triangle = 3,000$   
 3.  $\triangle \times \square = 90$        $\square \times \triangle = 720$   
 4.  $\square \times \triangle = 8$        $\square \times \triangle = 720$   
 5.  $\square = 80$        $\triangle = 8$   
 6.  $\square = 90$        $\triangle = 2$   
 7.  $\square = 80$        $\triangle = 8$   
 8.  $\square = 90$        $\triangle = 2$

Use the value of the shapes that you decoded above to solve these number sentences.

9.  $\triangle \times \square = 80$       10.  $\square \times \triangle = 450$   
 11.  $\square \times \triangle = 160$       12.  $\triangle \times \square = 4,800$

Also available in print

20 + 14   240 + 20   60 + 12   210 + 14

210 + 14   180 + 18   30 + 21   240 + 16

200 + 25   40 + 28   240 + 20   180 + 18

**Level 1** **Center Activity** **5-3**

You win if you are the first to get four connected rectangles, like: Play against \_\_\_\_\_

6 × 47   5 × 39   6 × 29   3 × 49

6 × 29   4 × 67   8 × 35   4 × 38

3 × 59   4 × 73   5 × 39   4 × 68

**Level 2** **Center Activity** **5-3**

You win if you are the first to get four connected rectangles, like: Play against \_\_\_\_\_

sentence to represent the tens array. Discuss why the factors are 2 and 50 instead of 2 and 5.

- Have students write a multiplication sentence to represent the ones array.
- Ask students to explain how the two multiplication sentences can be used to find the product of the original problem, and then have them find the product.

**ELD Report Back** To check understanding, ask a student to repeat and complete this sentence: *When you break apart to multiply  $4 \times 23$ , 80 and 12 are called \_\_\_\_\_ [partial products]*

**Leveled Homework**

**Retaining Master** **Enrichment 5-3**

**Breaking Apart to Multiply**

You can make multiplication easier by breaking larger numbers apart by place value.

Find  $3 \times 35$ .

Break apart 35 into 30 + 5.

Multiply the tens.

$3 \times 30 = 90$

$3 \times 5 = 15$

Complete.

1.  $5 \times 23 = 115$

$5 \times 20 = 100$

$5 \times 3 = 15$

$100 + 15 = 115$

2.  $4 \times 246 = 984$

$4 \times 200 = 800$

$4 \times 40 = 160$

$4 \times 6 = 24$

$800 + 160 + 24 = 984$

Find each product. You may use place-value blocks or drawings to help.

3.  $6 \times 21 = 126$

4.  $5 \times 43 = 215$

5.  $3 \times 116 = 348$

6.  $5 \times 22 = 110$

7.  $3 \times 352 = 1,056$

8.  $7 \times 226 = 1,582$

9.  $4 \times 34 = 136$

10.  $6 \times 217 = 1,302$

11. Number Sense: Tim said, "To find  $5 \times 33$ , I can add  $18 + 18$ ." No, Tim can add 18 tens or  $6 \times 30 = 180$  and 18 ones or  $6 \times 3$  to find the product.

**Practice Master** **Practice 5-3**

**Breaking Apart to Multiply**

Find each product. You may use place-value blocks or draw a picture to help.

1.  $4 \times 43$    2.  $7 \times 218$    3.  $5 \times 13$    4.  $2 \times 88$    5.  $4 \times 324$

172   1,526   65   176   1,336

6.  $3 \times 49$    7.  $6 \times 42$    8.  $4 \times 156$    9.  $3 \times 25$    10.  $5 \times 224$

147   252   624   75   1,120

11.  $2 \times 54$    12.  $4 \times 337$    13.  $7 \times 22$    14.  $5 \times 216$    15.  $6 \times 137$

108   1,348   154   1,080   822

16. A carpenter makes chairs with slats that run across the back of the chairs as shown. Each chair uses 7 slats. He needs to make 24 chairs. How many slats must he make?

168 slats

17. Each wood panel is 6 feet wide. Exactly 18 panels are needed to cover the walls of a room. How many feet of wood panel are needed?

114 feet

18. Which is equal to  $5 \times 23$ ?

A.  $(5 \times 9) + (2 \times 9)$    B.  $(5 \times 20) + (5 \times 1)$    C.  $5 \times 20$    D.  $(5 \times 20) + (5 \times 3)$

19. Writing to Explain: How can you multiply  $242 \times 8$  by breaking apart numbers?

**Sample answer: First, I would find the partial products:  $8 \times 200 = 1,600$ ;  $8 \times 40 = 320$ ;  $8 \times 2 = 16$ . Then I would add the partial products to find the product:  $1,600 + 320 + 16 = 1,936$ .**

**Multiplication Match** **Enrichment 5-3**

Draw lines to match each expression in the first column to the expression or model that represents the same problem in the second column. Then draw a line from the second column to the product in the third column.

$18.2 \times 23$	$(6 \times 10) + (6 \times 3)$	120
$28.3 \times 231$	$(3 \times 20) + (3 \times 30) + (3 \times 1)$	452
$33.3 \times 18$	$(3 \times 20) + (3 \times 6)$	117
$40.4 \times 18$	$(2 \times 20) + (2 \times 4)$	234
$69.5 \times 24$	$(4 \times 10) + (4 \times 8)$	46
$65.6 \times 39$	$(2 \times 20) + (2 \times 4)$	68
$77.4 \times 47$	$(4 \times 10) + (4 \times 8)$	72
$85.4 \times 13$	$(6 \times 30) + (6 \times 9)$	115
$97.5 \times 65$	$(6 \times 30) + (6 \times 9)$	114
$107.5 \times 73$	$(2 \times 20) + (2 \times 4)$	683
$118.7 \times 23$	$(6 \times 30) + (6 \times 9)$	46
$127.6 \times 19$	$(6 \times 30) + (6 \times 9)$	54

150 + 40	480 + 24	630 + 49	160 + 56
270 + 27	160 + 56	270 + 54	120 + 10
560 + 42	300 + 42	90 + 36	480 + 24

**Check Your Understanding**  
You win if you are the first to get four connected rectangles, like the one shown. Play again!

3 × 78	6 × 36	7 × 3	6 × 37
37 × 6	3 × 75	4 × 56	57 × 4
77 × 3	4 × 58	36 × 6	6 × 35

**Check Your Understanding**  
You win if you are the first to get four connected rectangles, like the one shown. Play again!

- 19 slightly to make a multiple of 10.
- When students give the correct answer of 20, ask "What is  $20 \times 7$ ?"
- Then rewrite the problem as  $20 \times 7$ .
- Adjust the difference. Subtract 1 group of 7 and ask for the answer.
- Repeat this process with other examples.

**Report Back** To check understanding, ask a student to repeat and complete this sentence: *To multiply 3 × 64 we first multiply 3 × 40 and 3 × 4, and then* [180 and 12]

## Levelled Homework

### Reasoning Master

**Reaching 5-4**

**Using Mental Math to Multiply**

You can multiply mentally by using compensation.

Find  $4 \times 19$  using compensation.  
Step 1: Subtract a number for 19 that is easy to multiply by 4.  
 $4 \times 19$      Add 1 to make 20.  
 $4 \times 20$

Step 2: Find the new product.  
 $4 \times 20 = 80$

Step 3: Now adjust. Subtract 4 groups of 1.  
 $80 - 4 = 76$   
So,  $4 \times 19 = 76$ .

Use compensation to find each product.

1. $5 \times 32 =$	160
2. $195 \times 5 =$	975
3. $7 \times 59 =$	371
4. $66 \times 2 =$	132
5. $6 \times 497 =$	2,982
6. $803 \times 3 =$	1,809
7. $603 \times 3 =$	1,809
8. $31 \times 8 =$	248
9. $598 \times 5 =$	2,990
10. $4 \times 29 =$	116
11. $4 \times 199 =$	796
12. $310 \times 6 =$	1,860

13. Algebra in a  $50 \times 60 = 120$ , a is a one-digit number. What number does a represent?  
2

### Practice Master

**Practice 5-4**

**Using Mental Math to Multiply**

Use compensation to find each product.

1. $34 \times 4 =$	136	2. $199 \times 6 =$	1,194	3. $53 \times 7 =$	371
4. $505 \times 4 =$	2,020	5. $41 \times 6 =$	246	6. $298 \times 6 =$	1,788
7. $76 \times 5 =$	380	8. $803 \times 7 =$	5,621	9. $83 \times 3 =$	249
10. $390 \times 2 =$	780	11. $28 \times 8 =$	224	12. $709 \times 4 =$	2,836
13. $94 \times 2 =$	188	14. $410 \times 8 =$	3,280	15. $16 \times 4 =$	64
16. $197 \times 5 =$	985	17. $46 \times 5 =$	230	18. $895 \times 9 =$	8,064

19. Reasonableness: Quinn used compensation to find the answer of 172. What did she do incorrectly?  
Quinn should have adjusted the product, instead of adding 3 groups of 4. The correct answer is 160.  $12 = 148$ .


20. Reasonableness: Quinn used compensation to find the answer of 172. What did she do incorrectly?  
Quinn should have adjusted the product, instead of adding 3 groups of 4. The correct answer is 160.  $12 = 148$ .

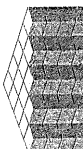
21. Writing to Explain: Find the product of  $503 \times 6$ . Explain how you found the product.  
3,018; Sample answer: I multiplied 500 by 6 to get 3,000. Then I added three groups of 6, or 18 to that product.


### Block Party

**Enrichment 5-4**

Find the pattern of blocks in each structure. Then write the total number of blocks.

1. There are 3 levels.  
  
Total number of blocks: 27 blocks

2. There are 5 levels.  
  
Total number of blocks: 75 blocks

3. Copy the pattern of 3 shaded blocks, 2 striped blocks, and 4 spotted blocks. Repeat this pattern to draw a side view of a staircase with 12 shaded blocks, 8 striped blocks, and 4 spotted blocks.  


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