

LESSON 8

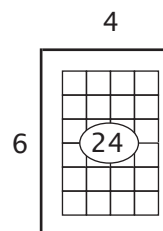
Division by 6

Notice that all the multiples of six are even numbers. Notice also that when you add the digits of the multiples, they add up to three or a multiple of three. In $6 \times 7 = 42$, 42 is an even number and $4 + 2 = 6$, which is a multiple of three. Carefully observe the student's progress and move to the next lesson only when you are satisfied with his or her mastery.

Example 1

$$6 \overline{) 24} \quad ?$$

$$\frac{24}{6} = 24 \div 6 =$$



“What times six is equal to 24?”

“Six times what is equal to 24?”

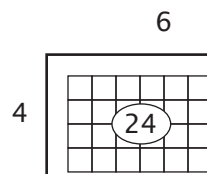
“How many sixes can I count out of 24?”

“24 divided by six equals what number?”

Example 2

$$4 \overline{) 24} \quad ?$$

$$\frac{24}{4} = 24 \div 4 =$$



“What times four is equal to 24?”

“Four times what is equal to 24?”

“How many fours can I count out of 24?”

“24 divided by four equals what number?”

$1 \div 1$	$2 \div 2$	$3 \div 3$	$4 \div 4$	$5 \div 5$	$6 \div 6$	$7 \div 7$	$8 \div 8$	$9 \div 9$	$10 \div 10$
$2 \div 1$	$4 \div 2$	$6 \div 3$	$8 \div 4$	$10 \div 5$	$12 \div 6$	$14 \div 7$	$16 \div 8$	$18 \div 9$	$20 \div 10$
$3 \div 1$	$6 \div 2$	$9 \div 3$	$12 \div 4$	$15 \div 5$	$18 \div 6$	$21 \div 7$	$24 \div 8$	$27 \div 9$	$30 \div 10$
$4 \div 1$	$8 \div 2$	$12 \div 3$	$16 \div 4$	$20 \div 5$	$24 \div 6$	$28 \div 7$	$32 \div 8$	$36 \div 9$	$40 \div 10$
$5 \div 1$	$10 \div 2$	$15 \div 3$	$20 \div 4$	$25 \div 5$	$30 \div 6$	$35 \div 7$	$40 \div 8$	$45 \div 9$	$50 \div 10$
$6 \div 1$	$12 \div 2$	$18 \div 3$	$24 \div 4$	$30 \div 5$	$36 \div 6$	$42 \div 7$	$48 \div 8$	$54 \div 9$	$60 \div 10$
$7 \div 1$	$14 \div 2$	$21 \div 3$	$28 \div 4$	$35 \div 5$	$42 \div 6$	$49 \div 7$	$56 \div 8$	$63 \div 9$	$70 \div 10$
$8 \div 1$	$16 \div 2$	$24 \div 3$	$32 \div 4$	$40 \div 5$	$48 \div 6$	$56 \div 7$	$64 \div 8$	$72 \div 9$	$80 \div 10$
$9 \div 1$	$18 \div 2$	$27 \div 3$	$36 \div 4$	$45 \div 5$	$54 \div 6$	$63 \div 7$	$72 \div 8$	$81 \div 9$	$90 \div 10$
$10 \div 1$	$20 \div 2$	$30 \div 3$	$40 \div 4$	$50 \div 5$	$60 \div 6$	$70 \div 7$	$80 \div 8$	$90 \div 9$	$100 \div 10$

LESSON PRACTICE

Answer the questions.

1. How many sixes can you count out of eighteen? _____

2. How many sixes can you count out of fifty-four? _____

3. How many sixes can you count out of twelve? _____

4. How many sixes can you count out of sixty? _____

Divide.

5. $6 \overline{) 12}$

6. $6 \overline{) 6}$

7. $6 \overline{) 24}$

8. $6 \overline{) 36}$

9. $6 \overline{) 42}$

10. $6 \overline{) 18}$

11. $60 \div 6 = \underline{\quad}$

12. $24 \div 6 = \underline{\quad}$

13. $42 \div 6 = \underline{\quad}$

14. $\frac{54}{6} = \underline{\quad}$

15. $\frac{30}{6} = \underline{\quad}$

Fill in the unknown number to make the division problem true.

16. $48 \div \underline{\quad} = 8$

17. How many ants are present if there are 24 legs? (Ants have six legs apiece.) $\underline{\quad}$

18. How much must Dana earn every day in order to earn \$30 in six days? $\underline{\quad}$

LESSON PRACTICE

Answer the questions.

1. How many sixes can you count out of thirty? _____
2. How many sixes can you count out of six? _____
3. How many sixes can you count out of twenty-four? _____
4. How many sixes can you count out of forty-eight? _____

Divide.

5. $6 \overline{) 36}$

6. $6 \overline{) 60}$

7. $6 \overline{) 30}$

8. $6 \overline{) 18}$

9. $6 \overline{) 54}$

10. $6 \overline{) 42}$

11. $6 \div 6 = \underline{\quad}$

12. $24 \div 6 = \underline{\quad}$

13. $18 \div 6 = \underline{\quad}$

14. $\frac{30}{6} = \underline{\quad}$

15. $\frac{48}{6} = \underline{\quad}$

Fill in the unknown number to make the division problem true.

16. $12 \div \underline{\quad} = 2$

17. If it took Marie six minutes to play a song on her harp, how many songs could she play in one hour? (1 hour = 60 minutes) $\underline{\quad}$

18. Roger earned \$54 in six hours. How much did he earn each hour?
 $\underline{\quad}$

LESSON PRACTICE

Answer the questions.

1. How many sixes can you count out of fifty-four? _____

2. How many sixes can you count out of thirty-six? _____

3. How many sixes can you count out of sixty? _____

4. How many sixes can you count out of forty-two? _____

Divide.

5. $6 \overline{) 18}$

6. $6 \overline{) 54}$

7. $6 \overline{) 6}$

8. $6 \overline{) 30}$

9. $6 \overline{) 12}$

10. $6 \overline{) 24}$

11. $42 \div 6 = \underline{\quad}$

12. $36 \div 6 = \underline{\quad}$

13. $48 \div 6 = \underline{\quad}$

14. $\frac{60}{6} = \underline{\quad}$

15. $\frac{54}{6} = \underline{\quad}$

16. $\frac{12}{6} = \underline{\quad}$

17. Shane has \$48 to spend on Christmas gifts for six of his friends. How much will he be able to spend on each friend? $\underline{\quad}$

18. A carpenter has a board that is 18 feet long. If he saws it into six equal lengths, how many feet long will each piece be? $\underline{\quad}$

How many yards long is each piece? $\underline{\quad}$

SYSTEMATIC REVIEW

Divide.

1. $6 \overline{) 18}$

2. $6 \overline{) 42}$

3. $6 \overline{) 54}$

4. $3 \overline{) 24}$

5. $5 \overline{) 25}$

6. $2 \overline{) 18}$

7. $9 \overline{) 54}$

8. $10 \overline{) 60}$

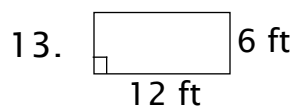
9. $48 \div 6 = \underline{\quad}$

10. $72 \div 9 = \underline{\quad}$

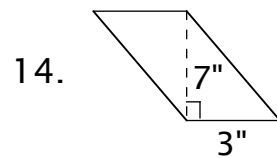
11. $\frac{21}{3} = \underline{\quad}$

12. $\frac{35}{5} = \underline{\quad}$

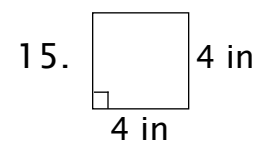
Find the area.



A = $\underline{\quad}$



A = $\underline{\quad}$



A = $\underline{\quad}$



QUICK REVIEW

Place-value notation can be used to check your work when multiplying. Be sure to place each “carry” in the proper column. Study the example.

Example 1

$\begin{array}{r} 14 \\ \times 17 \\ \hline \textcircled{2} \\ 78 \\ \textcircled{1} \\ 14 \\ \hline 238 \end{array}$	$\begin{array}{r} 10 + 4 \\ \times 10 + 7 \\ \hline \textcircled{20} \\ 70 + 8 \\ \textcircled{100} \\ 100 + 40 + \\ \hline 200 + 30 + 8 \end{array}$
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Multiply. Check your work with place-value notation.

16.
$$\begin{array}{r} 23 \\ \times 36 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 78 \\ \times 34 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 65 \\ \times 15 \\ \hline \end{array}$$

19. Each of the 12 white mice had 15 babies. How many baby mice is that? _____
20. The area of a rectangle is 45 square feet, and the area of a parallelogram is 61 square feet. What is the difference between their areas? _____
21. Sophie bought 36 skeins of yarn. If she uses six skeins for each afghan, how many afghans can she make? _____
22. Kevin earned \$39 yesterday and \$28 today. How much did he earn in all? _____

SYSTEMATIC REVIEW

Divide.

1. $6 \overline{) 12}$

2. $6 \overline{) 60}$

3. $6 \overline{) 42}$

4. $6 \overline{) 24}$

5. $9 \overline{) 27}$

6. $5 \overline{) 40}$

7. $10 \overline{) 20}$

8. $3 \overline{) 12}$

9. $15 \div 3 = \underline{\quad}$

10. $30 \div 6 = \underline{\quad}$

11. $\frac{6}{6} = \underline{\quad}$

12. $\frac{12}{2} = \underline{\quad}$

Add or subtract.

$$\begin{array}{r} 13. \quad 13 \\ + 19 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 28 \\ + 49 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 72 \\ - 26 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 47 \\ - 38 \\ \hline \end{array}$$

Multiply. Check your work with place-value notation.

$$\begin{array}{r} 17. \quad 45 \\ \times 22 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 16 \\ \times 14 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 39 \\ \times 5 \\ \hline \end{array}$$

20. Don bought 30 feet of cable for a dog run. How many yards long will his dog run be? _____

If the cost of the cable is \$6 a yard, what is the total cost? _____

21. A parallelogram has a base of 14 inches and a height of 18 inches. What is its area? _____
22. Paul drove 46 miles this morning and 28 miles this afternoon. How many miles did he drive today? _____

SYSTEMATIC REVIEW

Divide.

1. $6 \overline{)48}$

2. $6 \overline{)18}$

3. $6 \overline{)12}$

4. $6 \overline{)36}$

5. $9 \overline{)72}$

6. $6 \overline{)54}$

7. $3 \overline{)27}$

8. $5 \overline{)45}$

9. $70 \div 10 = \underline{\quad}$

10. $16 \div 2 = \underline{\quad}$

11. $\frac{42}{6} = \underline{\quad}$

12. $\frac{60}{6} = \underline{\quad}$

Add or subtract.

$$\begin{array}{r} 13. \quad 85 \\ + 18 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 47 \\ - 38 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 49 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 64 \\ - 25 \\ \hline \end{array}$$

Multiply. Check your work with place value-notation.

$$\begin{array}{r} 17. \quad 33 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 44 \\ \times 14 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 15 \\ \times 15 \\ \hline \end{array}$$

20. Twenty-four people are lined up for a ride at the fair. If six people can ride at one time, how many turns will be needed to give everyone a ride? _____
21. Mr. Rich made \$35 an hour. If he worked for 14 hours, how much did he earn? _____
22. A parallelogram has an area of 42 square feet. If the height is six feet, what is the length of the base? (divide) _____

APPLICATION & ENRICHMENT

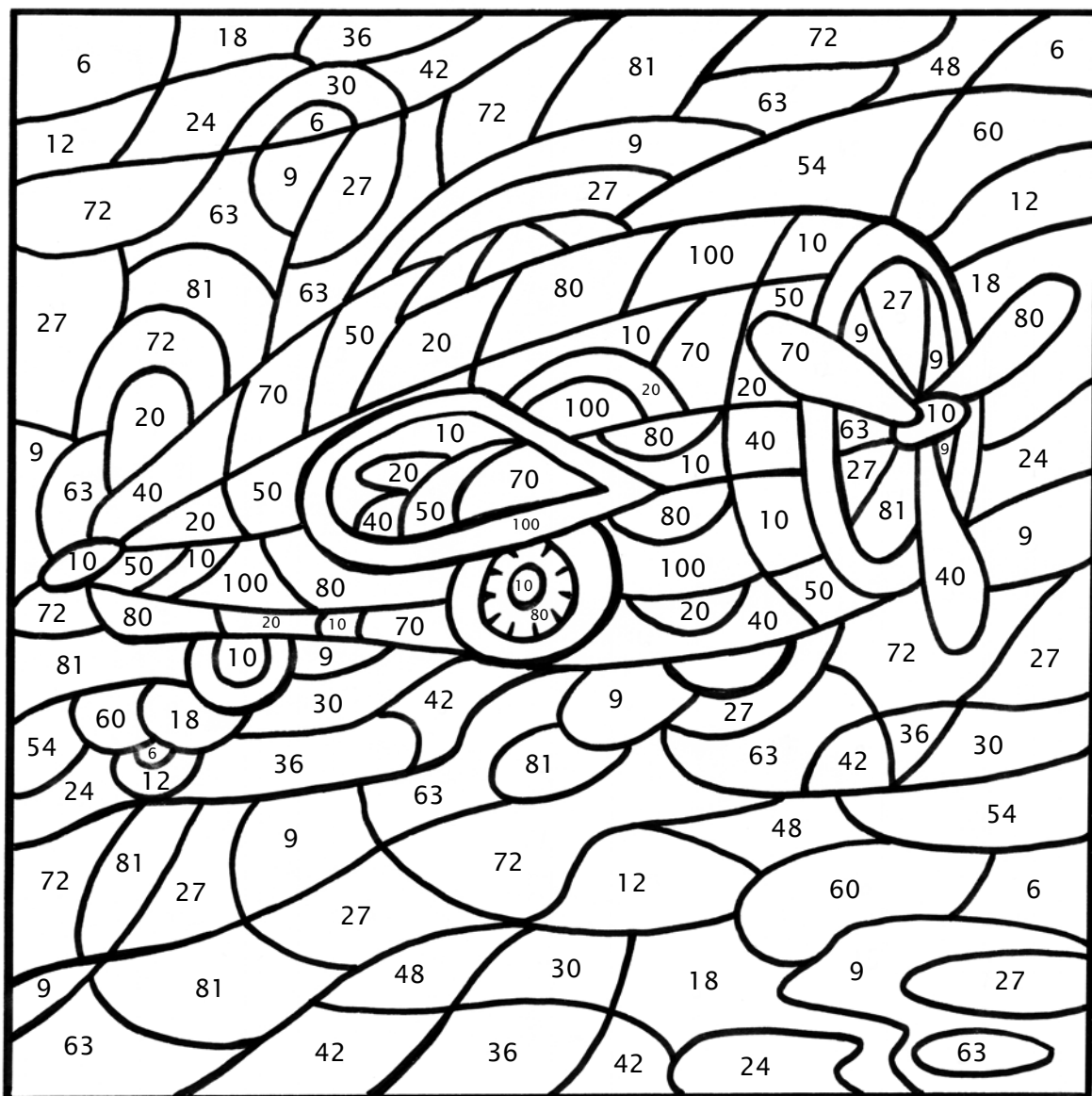
Color the picture. Complete each step in the order given for best results. If you have already colored a number, do not color it again in the next step.

If the number has six as a factor, color the space lavender or purple.

If the number has 10 but not six as a factor, color the space blue.

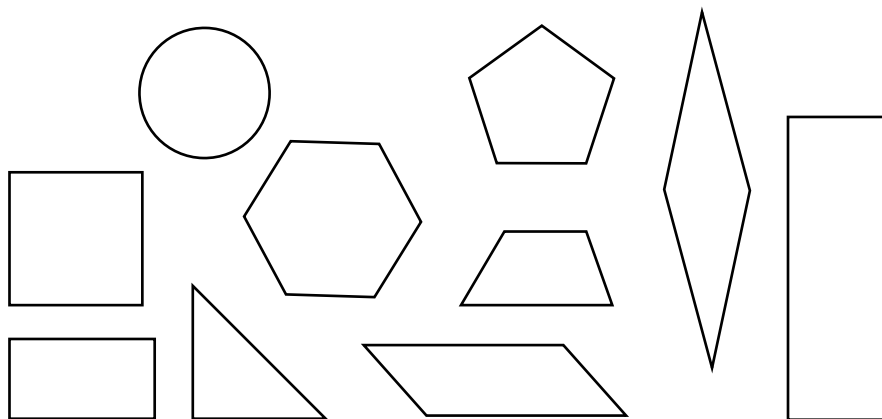
If the number has nine but not six as a factor, color the space red.

If there is no number, leave the space white.



Quadrilateral is a big word that means “four sides.” Parallelograms, rectangles, and squares are all quadrilaterals. There are other kinds of quadrilaterals as well.

1. Put a black X on every shape that is not a quadrilateral.



A quadrilateral with two sets of parallel sides is a *parallelogram*. Some parallelograms have square corners and some do not.

2. Draw a red circle around the parallelograms.

How many parallelograms did you find? _____

A parallelogram with four square corners or right angles is a *rectangle*.

3. Draw green circles around the rectangles. Some shapes will have both red and green circles.

How many rectangles did you find? _____

4. A square is a special rectangle that has all four sides the same length. Color the square blue.

LESSON TEST

Divide.

1. $6 \overline{)12}$

2. $6 \overline{)24}$

3. $6 \overline{)54}$

4. $6 \overline{)30}$

5. $6 \overline{)42}$

6. $6 \overline{)48}$

7. $6 \overline{)18}$

8. $6 \overline{)36}$

9. $72 \div 9 = \underline{\hspace{2cm}}$

10. $20 \div 5 = \underline{\hspace{2cm}}$

11. $\frac{8}{2} = \underline{\hspace{2cm}}$

12. $\frac{27}{3} = \underline{\hspace{2cm}}$

Add or subtract.

$$\begin{array}{r} 13. \quad 23 \\ - \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 72 \\ + 19 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 53 \\ - 45 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} 16. \quad 22 \\ \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 45 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 16 \\ \times 37 \\ \hline \end{array}$$

19. Jeremy was bored, so he counted people's feet as they walked by. If he counted 20 feet, how many people had gone by? _____
20. A parallelogram has an area of 36 square feet. If the height is six feet, what is the length of the base? _____

10. $8 \div 1 = \underline{8}$
11. $\frac{81}{9} = \underline{9}$
12. $\frac{21}{3} = \underline{7}$
13. $4 \times \underline{6} = 24$
14. $6 \times \underline{10} = 60$
15. $6 \times \underline{7} = 42$
16. $4 \times \underline{7} = 28$
17.
$$\begin{array}{r} 71 \\ +62 \\ \hline 133 \end{array}$$
18.
$$\begin{array}{r} 34 \overset{1}{3} \\ -25 \\ \hline 18 \end{array}$$
19.
$$\begin{array}{r} 92 \\ +11 \\ \hline 103 \end{array}$$
20.
$$\begin{array}{r} 1 \\ 57 \\ +46 \\ \hline 103 \end{array}$$
21. parallel
22. $5 \times 3 = 15$ sq yd

16. $4 \times \underline{4} = 16$
17.
$$\begin{array}{r} 121 \\ -9 \\ \hline 12 \end{array}$$
18.
$$\begin{array}{r} 1 \\ 76 \\ +54 \\ \hline 130 \end{array}$$
19.
$$\begin{array}{r} 33 \\ +45 \\ \hline 78 \end{array}$$
20.
$$\begin{array}{r} 56 \overset{1}{4} \\ -25 \\ \hline 39 \end{array}$$
21. $14 \div 2 = 7$ qt
22. $30 - 16 = 14$ books

Systematic Review 7F

1. $6 \times 7 = 42$ sq ft
2. $3 \times 8 = 24$ sq in
3. $10 \times 9 = 90$ sq ft
4. $3 \times 3 = 9$ sq mi
5. $27 \div 9 = \underline{3}$
6. $15 \div 3 = \underline{5}$
7. $30 \div 5 = \underline{6}$
8. $16 \div 2 = \underline{8}$
9. $72 \div 9 = \underline{8}$
10. $90 \div 10 = \underline{9}$
11. $\frac{20}{2} = \underline{10}$
12. $\frac{45}{9} = \underline{5}$
13. $4 \times \underline{8} = 32$
14. $6 \times \underline{8} = 48$
15. $6 \times \underline{6} = 36$

Lesson Practice 8A

1. 6,12,18;3
2. 6,12,18,24,30,36,42,48,54;9
3. 6,12;2
4. 6,12,18,24,30,36,42,48,54,60;10
5. $12 \div 6 = \underline{2}$
6. $6 \div 6 = \underline{1}$
7. $24 \div 6 = \underline{4}$
8. $36 \div 6 = \underline{6}$
9. $42 \div 6 = \underline{7}$
10. $18 \div 6 = \underline{3}$
11. $60 \div 6 = \underline{10}$
12. $24 \div 6 = \underline{4}$
13. $42 \div 6 = \underline{7}$
14. $\frac{54}{6} = \underline{9}$
15. $\frac{30}{6} = \underline{5}$
16. $48 \div \underline{6} = 8$
17. $24 \div 6 = 4$ ants
18. $\$30 \div 6 = \5 a day

Lesson Practice 8B

1. 6,12,18,24,30;5
2. 6;1
3. 6,12,18,24;4
4. 6,12,18,24,30,36,42,48;8
5. $36 \div 6 = \underline{6}$
6. $60 \div 6 = \underline{10}$
7. $30 \div 6 = \underline{5}$
8. $18 \div 6 = \underline{3}$
9. $54 \div 6 = \underline{9}$
10. $42 \div 6 = \underline{7}$
11. $6 \div 6 = \underline{1}$
12. $24 \div 6 = \underline{4}$
13. $18 \div 6 = \underline{3}$
14. $\frac{30}{6} = \underline{5}$
15. $\frac{48}{6} = \underline{8}$
16. $12 \div 6 = 2$
17. $60 \div 6 = 10$ songs
18. $\$54 \div 6 = \9 each hour

Lesson Practice 8C

1. 6,12,18,24,30,36,42,48,54;9
2. 6,12,18,24,30,36;6
3. 6,12,18,24,30,36,42,48,54,60;10
4. 6,12,18,24,30,36,42;7
5. $18 \div 6 = \underline{3}$
6. $54 \div 6 = \underline{9}$
7. $6 \div 6 = \underline{1}$
8. $30 \div 6 = \underline{5}$
9. $12 \div 6 = \underline{2}$
10. $24 \div 6 = \underline{4}$
11. $42 \div 6 = \underline{7}$
12. $36 \div 6 = 6$
13. $48 \div 6 = \underline{8}$
14. $\frac{60}{6} = \underline{10}$
15. $\frac{54}{6} = \underline{9}$
16. $\frac{12}{6} = \underline{2}$

17. $\$48 \div 6 = \8 per friend
18. $18 \div 6 = 3$ ft
 $3 \div 3 = 1$ yd

Systematic Review 8D

1. $18 \div 6 = \underline{3}$
2. $42 \div 6 = \underline{7}$
3. $54 \div 6 = \underline{9}$
4. $24 \div 3 = \underline{8}$
5. $25 \div 5 = \underline{5}$
6. $18 \div 2 = \underline{9}$
7. $54 \div 9 = \underline{6}$
8. $60 \div 10 = \underline{6}$
9. $48 \div 6 = \underline{8}$
10. $72 \div 9 = \underline{8}$
11. $\frac{21}{3} = \underline{7}$
12. $\frac{35}{5} = \underline{7}$
13. $12 \times 6 = 72$ sq ft
14. $7 \times 3 = 21$ sq in
15. $4 \times 4 = 16$ sq in
16.
$$\begin{array}{r} 23 \qquad 20+3 \\ \times 36 \qquad \times 30+6 \\ \hline 11 \qquad 100 \qquad 10 \\ 128 \qquad 100+20+8 \\ \hline 69 \qquad 600+90+ \\ 828 \qquad 800+20+8 \end{array}$$
17.
$$\begin{array}{r} 78 \qquad 70+8 \\ \times 34 \qquad \times 30+4 \\ \hline 1 \qquad 100 \qquad 200 \qquad 30 \\ 23 \qquad 200+80+2 \\ 282 \qquad 2000+100+40 \\ \hline 214 \qquad 2000+600+50+2 \\ 2652 \end{array}$$
18.
$$\begin{array}{r} 65 \qquad 60+5 \\ \times 15 \qquad \times 10+5 \\ \hline 2 \qquad 20 \\ 305 \qquad 300+00+5 \\ \hline 65 \qquad 600+50+ \\ 975 \qquad 900+70+5 \end{array}$$
19. $12 \times 15 = 180$ baby mice
20. $61 - 45 = 16$ sq ft
21. $36 \div 6 = 6$ afghans
22. $\$39 + \$28 = \$67$

Systematic Review 8E

1. $12 \div 6 = \underline{2}$
2. $60 \div 6 = \underline{10}$
3. $42 \div 6 = \underline{7}$
4. $24 \div 6 = \underline{4}$
5. $27 \div 9 = \underline{3}$
6. $40 \div 5 = \underline{8}$
7. $20 \div 10 = \underline{2}$
8. $12 \div 3 = \underline{4}$
9. $15 \div 3 = \underline{5}$
10. $30 \div 6 = \underline{5}$
11. $\frac{6}{6} = \underline{1}$
12. $\frac{12}{2} = \underline{6}$
13.
$$\begin{array}{r} 1 \\ 13 \\ +19 \\ \hline 32 \end{array}$$
14.
$$\begin{array}{r} 1 \\ 28 \\ +49 \\ \hline 77 \end{array}$$
15.
$$\begin{array}{r} 6\cancel{7} \ 12 \\ - 26 \\ \hline 46 \end{array}$$
16.
$$\begin{array}{r} 3\cancel{4} \ 17 \\ - 38 \\ \hline 9 \end{array}$$
17.
$$\begin{array}{r} 45 \qquad 40+5 \\ \times 22 \qquad \times 20+2 \\ \hline 1 \qquad 10 \\ 180 \ 100 \ 80+0 \\ 80 \ 800+00+ \\ \hline 990 \ 900+90+0 \end{array}$$
18.
$$\begin{array}{r} 16 \qquad 10+6 \\ \times 14 \qquad \times 10+4 \\ \hline 2 \qquad 20 \\ 144 \ 100+40+4 \\ 16 \ 100 \ 60+ \\ \hline 224 \ 200+20+4 \end{array}$$
19.
$$\begin{array}{r} 39 \qquad 30+9 \\ \times 5 \qquad \times 5 \\ \hline 14 \ 100 \ 40 \\ 55 \qquad +50+5 \\ \hline 195 \ 100+90+5 \end{array}$$

20. $30 \div 3 = 10$ yd
 $\$6 \times 10 = \60
21. $14 \times 18 = 252$ sq in
22. $46 + 28 = 74$ mi

Systematic Review 8F

1. $48 \div 6 = \underline{8}$
2. $18 \div 6 = \underline{3}$
3. $12 \div 6 = \underline{2}$
4. $36 \div 6 = \underline{6}$
5. $72 \div 9 = \underline{8}$
6. $54 \div 6 = \underline{9}$
7. $27 \div 3 = \underline{9}$
8. $45 \div 5 = \underline{9}$
9. $70 \div 10 = \underline{7}$
10. $16 \div 2 = \underline{8}$
11. $\frac{42}{6} = \underline{7}$
12. $\frac{60}{6} = \underline{10}$
13.
$$\begin{array}{r} 185 \\ +18 \\ \hline 103 \end{array}$$
14.
$$\begin{array}{r} 3\cancel{4} \ 17 \\ - 38 \\ \hline 9 \end{array}$$
15.
$$\begin{array}{r} 149 \\ +21 \\ \hline 70 \end{array}$$
16.
$$\begin{array}{r} 5\cancel{6} \ 14 \\ - 25 \\ \hline 39 \end{array}$$
17.
$$\begin{array}{r} 33 \qquad 30+3 \\ \times 24 \qquad \times 20+4 \\ \hline 1 \qquad 10 \\ 122 \ 100+20+2 \\ 66 \ 600+60+ \\ \hline 792 \ 700+90+2 \end{array}$$

18.
$$\begin{array}{r} 44 \\ \times 14 \\ \hline 11 \\ 166 \\ \hline 44 \\ 616 \end{array}$$

$$\begin{array}{r} 40+4 \\ \times 10+4 \\ \hline 100 \quad 10 \\ 100+60+6 \\ 400+40+ \\ 600+10+6 \end{array}$$
19.
$$\begin{array}{r} 15 \\ \times 15 \\ \hline 12 \\ 55 \\ \hline 15 \\ 225 \end{array}$$

$$\begin{array}{r} 10+5 \\ \times 10+5 \\ \hline 100 \quad 20 \\ +50+5 \\ 100+50+ \\ 200+20+5 \end{array}$$
20. $24 \div 6 = 4$ turns
21. $\$35 \times 14 = \490
22. $42 \div 6 = 7$ ft

Lesson Practice 9A

- done
- $4 \times 4 = 16$
 $16 \div 2 = 8$ sq in
- $2 \times 7 = 14$
 $14 \div 2 = 7$ sq mi
- $3 \times 6 = 18$
 $18 \div 2 = 9$ sq ft
- $4 \times 5 = 20$
 $20 \div 2 = 10$ sq in
- $9 \times 2 = 18$
 $18 \div 2 = 9$ sq ft
- $8 \times 2 = 16$
 $16 \div 2 = 8$ sq yd
- $1 \times 2 = 2$
 $2 \div 2 = 1$ sq in
- $2 \times 2 = 4$
 $4 \div 2 = 2$ sq mi
- $2 \times 4 = 8$
 $8 \div 2 = 4$ sq in

Lesson Practice 9B

- $3 \times 4 = 12$
 $12 \div 2 = 6$ sq ft
- $2 \times 6 = 12$
 $12 \div 2 = 6$ sq in

- $1 \times 8 = 8$
 $8 \div 2 = 4$ sq mi
- $2 \times 10 = 20$
 $20 \div 2 = 10$ sq ft
- $2 \times 5 = 10$
 $10 \div 2 = 5$ sq in
- $10 \times 1 = 10$
 $10 \div 2 = 5$ sq in
- $2 \times 3 = 6$
 $6 \div 2 = 3$ sq yd
- $3 \times 6 = 18$
 $18 \div 2 = 9$ sq ft
- $3 \div 3 = 1$ yd
 $6 \div 3 = 2$ yd
- $2 \times 1 = 2$
 $2 \div 2 = 1$ sq yd

Lesson Practice 9C

- $1 \times 4 = 4$
 $4 \div 2 = 2$ sq ft
- $2 \times 5 = 10$
 $10 \div 2 = 5$ sq in
- $2 \times 9 = 18$
 $18 \div 2 = 9$ sq mi
- $4 \times 4 = 16$
 $16 \div 2 = 8$ sq ft
- $2 \times 8 = 16$
 $16 \div 2 = 8$ sq in
- $2 \times 4 = 8$
 $8 \div 2 = 4$ sq in
- $2 \times 2 = 4$
 $4 \div 2 = 2$ sq yd
- $2 \times 7 = 14$
 $14 \div 2 = 7$ sq ft
- $4 \times 3 = 12$
 $12 \div 2 = 6$ sq ft
so 6 plants
- $6 \times 3 = 18$
 $18 \div 2 = 9$ sq yd

APPLICATION & ENRICHMENT SOLUTIONS

Application & Enrichment 1G

wind-up mouse.

1. Final answer is 120 (given).
2. Final answer is 486.
3. Final answer is 280.
4. Final answer is 576.

Application & Enrichment 2G

space shuttle

1. 10
2. 9
3. 2
4. 5
5. 2
6. 5
7. 1
8. 10
9. 3
10. 5
11. 2
12. 2
13. 4
14. 3
15. 2
16. 1
17. 4
18. 5
19. 8
20. 7

Application & Enrichment 3G

boat

1. divide
2. multiply
3. divide
4. divide
5. multiply

Application & Enrichment 4G

music box figure

1. $5A = 15$ or $15 \div 5 = A$
 $A = 3$
2. $3B = 30$ or $30 \div 3 = B$
 $B = 10$

Students may use any letter they like for the unknown.

3. $2D = 12$ or $12 \div 2 = D$
 $D = 6$
4. $8H = 80$ or $80 \div 8 = H$
 $H = 10$

Application & Enrichment 5G

1. line segment —
2. point •
3. ray →
4. line ↔
5. point
6. line segment
7. ray
8. line

Application & Enrichment 6G

clock

These answers may be in any order.

$$8 \times 3, 6 \times 4, 4 \times 6, 3 \times 8$$

Application & Enrichment 7G

$$6 \text{ inches} \times 4 \text{ inches} = 24 \text{ square inches}$$

Application & Enrichment 8G

airplane

1. Put a black X on the four shapes that do not have four sides
2. Five parallelograms. They all have two sets of parallel sides.
3. Three rectangles. They all have four right angles.

4. One square. All four sides are the same length.
The unmarked figure is a trapezoid.

Application & Enrichment 9G

- $90^\circ + 90^\circ + 90^\circ + 90^\circ = 360^\circ$
Yes
- $3 \times 45^\circ = 135^\circ$ or $45^\circ + 45^\circ + 45^\circ = 135^\circ$
Smaller angles may be added to find the measure of larger angles.

- There are two obtuse angles.
- There are two right angles.
- Use the definitions to check the angles. They may be turned in any direction.
- $90^\circ - 75^\circ = 15^\circ$, so $D = 15^\circ$

Application & Enrichment 10G

hot air balloon

- always
- more likely
- always
- never
- less likely

Application & Enrichment 11G

- Smith:
 $1 + 2 + 7 + 10 = 20$; $20 \div 4 = 5$
Jones:
 $4 + 5 + 6 = 15$; $15 \div 3 = 5$
Smith = Jones
- Chloe:
 $6 + 7 + 9 = 21$; $21 \div 3 = 7$
Tucker:
 $1 + 2 + 12 = 15$; $15 \div 3 = 5$
Chloe > Tucker

- Timothy:
 $1 + 2 + 3 = 6 \div 3 = 2$
Peter:
 $0 + 2 + 10 = 12$; $12 \div 3 = 4$
Timothy < Peter

number of row	1	2	3	4	5	6	7	8
number of boxes in that row	1	2	3	4	5	6	7	8
total number of boxes	1	3	6	10	15	21	28	36

- They are the same.
- Add the number of boxes in each new row to the total number of boxes in the previous rows.
Or, just looking at the bottom row, add a number that is one more each time: $1 + 2 = 3$, $3 + 3 = 6$, $6 + 4 = 10$, $10 + 5 = 15$, etc. There may be other ways to describe the patterns in the chart.

number of triangles	1	2	3	4	5	6	7
number of toothpicks	3	5	7	9	11	13	15

- 13 toothpicks
- 21 toothpicks. Each new triangle needs two new toothpicks.
Comparing the top and bottom rows of the chart, double the number of triangles and add one to find the number of toothpicks needed. Experimenting with this is more important than finding the exact answer without help.

21. $50 \div 5 = 10$

22. $9 \div 3 = 3$

23. $9 \div 9 = 1$

24. $27 \div 3 = 9$

25. $90 \div 10 = 9$

26. $15 \div 3 = 5$

27. $12 \div 2 = 6$

28. $4 \div 1 = 4$

29. $40 \div 5 = 8$

30. $54 \div 9 = 6$

31. $70 \div 10 = 7$

32. $15 \div 5 = 3$

33. $45 \div 5 = 9$

34. $30 \div 3 = 10$

35. $5 \div 1 = 5$

36. $100 \div 10 = 10$

37. $9 \div 1 = 9$

38. $20 \div 5 = 4$

39. $72 \div 9 = 8$

40. $20 \div 2 = 10$

41. $6 \div 3 = 2$

42. $10 \div 5 = 2$

43. $18 \div 9 = 2$

44. $35 \div 5 = 7$

45. $8 \div 2 = 4$

46. $80 \div 10 = 8$

47. $8 \div 1 = 8$

48. $3 \div 3 = 1$

49.
$$\begin{array}{r} 156 \\ + 39 \\ \hline 95 \end{array}$$

50.
$$\begin{array}{r} 56\cancel{1}2 \\ - 25 \\ \hline 37 \end{array}$$

51.
$$\begin{array}{r} 78\cancel{1}1 \\ - 46 \\ \hline 35 \end{array}$$

52. \parallel

53. \perp

54. $8 \times 9 = 72$ sq ft

55. $5 \times 3 = 15$ ft

56. $27 \div 3 = 9$ yd

57. $6 \times 2 = 12$ pt

58. $24 \div 2 = 12$ qt

Lesson Test 7

1. $9 \times 10 = 90$ sq ft

2. $3 \times 7 = 21$ sq in

3. $36 \div 9 = 4$

4. $18 \div 3 = 6$

5. $20 \div 5 = 4$

6. $12 \div 2 = 6$

7. $81 \div 9 = 9$

8. $40 \div 10 = 4$

9. $4 \div 2 = 2$

10. $63 \div 9 = 7$

11. $6 \times \underline{2} = 12$

12. $6 \times \underline{5} = 30$

13. $6 \times \underline{9} = 54$

14. $6 \times \underline{3} = 18$

15. $6 \times \underline{7} = 42$

16. $6 \times \underline{8} = 48$

17. $6 \times \underline{4} = 24$

18. $6 \times \underline{6} = 36$

19. $25 - 16 = 9$

$9 \div 3 = 3$ cages

20. $18 \div 2 = 9$ qt

Lesson Test 8

1. $12 \div 6 = 2$

2. $24 \div 6 = 4$

3. $54 \div 6 = 9$

4. $30 \div 6 = 5$

5. $42 \div 6 = 7$

6. $48 \div 6 = 8$

7. $18 \div 6 = 3$

8. $36 \div 6 = 6$

9. $72 \div 9 = 8$

10. $20 \div 5 = 4$

11. $8 \div 2 = 4$

12. $27 \div 3 = 9$

13.
$$\begin{array}{r} 1\cancel{2}3 \\ - 5 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 14. \quad 72 \\ + 19 \\ \hline 91 \end{array}$$

$$\begin{array}{r} 15. \quad 453 \\ - 45 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 16. \quad 22 \\ \times 13 \\ \hline 66 \\ \underline{22} \\ 286 \end{array}$$

$$\begin{array}{r} 45 \\ \times 24 \\ \hline 12 \\ \underline{160} \\ 80 \\ 1,080 \end{array}$$

$$\begin{array}{r} 18. \quad 16 \\ \times 37 \\ \hline 14 \\ \underline{172} \\ 38 \\ \underline{592} \end{array}$$

19. $20 \div 2 = 10$ people

20. $36 \div 6 = 6$ ft

Lesson Test 9

1. $4 \times 5 = 20$
 $20 \div 2 = 10$ sq in
2. $7 \times 6 = 42$ sq ft
3. $3 \times 2 = 6$
 $6 \div 2 = 3$ sq yd
4. $40 \div 10 = 4$
5. $12 \div 3 = 4$
6. $8 \div 2 = 4$
7. $45 \div 5 = 9$
8. $4 \times \underline{6} = 24$
9. $4 \times \underline{8} = 32$
10. $4 \times \underline{4} = 16$
11. $4 \times \underline{7} = 28$

$$\begin{array}{r} 12. \quad 84 \\ \times 22 \\ \hline 168 \\ \underline{168} \\ 1,848 \end{array}$$

$$\begin{array}{r} 13. \quad 43 \\ \times 35 \\ \hline 215 \\ \underline{129} \\ 1,505 \end{array}$$

$$\begin{array}{r} 14. \quad 67 \\ \times 54 \\ \hline 12 \\ \underline{248} \\ 335 \\ 3,618 \end{array}$$

15. $25 + 15 + 24 + 61 = 125$

16. $44 + 38 + 62 + 56 + 11 = 211$

17. $90 + 23 + 57 + 18 + 82 = 270$

18. no

19. $25 + 16 + 18 + 32 = 91$ animals

20. $91 \times 4 = 364$ hooves

Lesson Test 10

1. $8 \div 4 = 2$
2. $32 \div 4 = 8$
3. $16 \div 4 = 4$
4. $12 \div 4 = 3$
5. $28 \div 4 = 7$
6. $20 \div 4 = 5$
7. $36 \div 4 = 9$
8. $24 \div 4 = 6$
9. $18 \div 6 = 3$
10. $42 \div 6 = 7$
11. $30 \div 6 = 5$
12. $48 \div 6 = 8$
13. $71 + 34 + 59 + 26 = 190$
14.
$$\begin{array}{r} 565 \\ - 39 \\ \hline 26 \end{array}$$