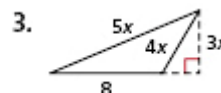
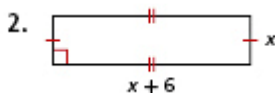
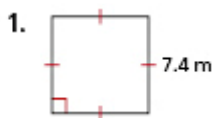


## Fundamentals of Geometry

## Coordinate and Transformation Tools

**1.2.1 Using Formulas in Geometry**

Find the perimeter and area of each figure.



4. **Crafts** The quilt pattern includes 32 small triangles. Each has a base of 3 in. and a height of 1.5 in. Find the amount of fabric used to make the 32 triangles.



Find the circumference and area of each circle with the given radius or diameter. Use the  $\pi$  key on your calculator. Round to the nearest tenth.

5.  $r = 12$  m

6.  $d = 12.5$  ft

7.  $d = \frac{1}{2}$  mi

**1.2.2 Midpoint and Distance in the Coordinate Plane**

Find the coordinates of the midpoint of each segment.

8.  $\overline{XY}$  with endpoints  $X(-3, -7)$  and  $Y(-1, 1)$

9.  $\overline{MN}$  with endpoints  $M(12, -7)$  and  $N(-5, -2)$

## Fundamentals of Geometry

## Coordinate and Transformation Tools

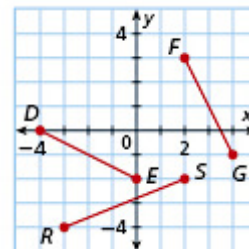
10.  $M$  is the midpoint of  $\overline{QR}$ .  $Q$  has coordinates  $(-3, 5)$ , and  $M$  has coordinates  $(7, -9)$ . Find the coordinates of  $R$ .

11.  $D$  is the midpoint of  $\overline{CE}$ .  $E$  has coordinates  $(-3, -2)$ , and  $D$  has coordinates  $(\frac{21}{2}, 1)$ . Find the coordinates of  $C$ .

**Multi-Step** Find the length of the given segments and determine if they are congruent.

12.  $\overline{DE}$  and  $\overline{FG}$

13.  $\overline{DE}$  and  $\overline{RS}$



Use the Distance Formula and the Pythagorean Theorem to find the distance, to the nearest tenth, between each pair of points.

14.  $U(0, 1)$  and  $V(-3, -9)$

15.  $M(10, -1)$  and  $N(2, -5)$

16.  $P(-10, 1)$  and  $Q(5, 5)$

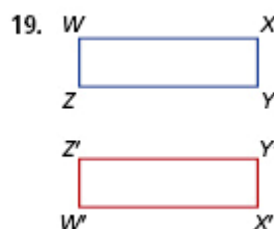
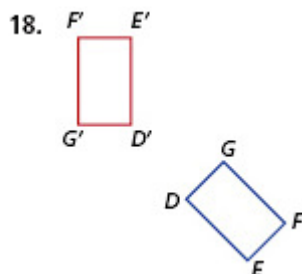
17. **Consumer Application** Televisions and computer screens are usually advertised based on the length of their diagonals. If the height of a computer screen is 11 in. and the width is 14 in., what is the length of the diagonal? Round to the nearest inch.

Fundamentals of Geometry

Coordinate and Transformation Tools

**1.2.3 Transformations in the Coordinate Plane**

Identify each transformation. Then use arrow notation to describe the transformation.



20. A figure has vertices at  $J(-2, 3)$ ,  $K(0, 3)$ ,  $L(0, 1)$ , and  $M(-2, 1)$ . After a transformation, the image of the figure has vertices at  $J'(2, 1)$ ,  $K'(4, 1)$ ,  $L'(4, -1)$ , and  $M'(2, -1)$ . Draw the preimage and image. Then identify the transformation.

21. **Multi-Step** The coordinates of the vertices of rectangle  $ABCD$  are  $A(-4, 1)$ ,  $B(1, 1)$ ,  $C(1, -2)$ , and  $D(-4, -2)$ . Find the coordinates for the image of rectangle  $ABCD$  after the translation  $(x, y) \rightarrow (x + 3, y - 2)$ . Draw the preimage and the image.

22. **Travel** Write a rule for the translation that maps the descent of the hot air balloon.

