Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Unit 2 Review (Chapters 1, 2, and 3)

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Solve the equation. Check your solution.

____ 1. $-54.4 = -6.8x$
a. 369.92
b. –47.6
c. 8
d. –61.2

____ 2. $-18 = z + 21 \div 7$
a. –165
b. 15
c. –21
d. –147

____ 3. $5x + 10x - 54 = 66$
a. –8
b. 24
c. 8
d. $-\frac{44}{61}$

____ 4. $3(5 - 9b) + 11 = -244$
a. –10
b. 10
c. –24.2
d. 9

____ 5. $3(z - 4) = 7z + 4$
a. –0.8
b. 1.6
c. –2
d. –4

____ 6. Which of the following equations is equivalent to the equation $30 = -2(-2x + 6)$?
a. $30 = 4x + 12$
b. $30 = 4x - 12$
c. $30 = 4x + 6$
d. $30 = 4x - 6$

____ 7. Which of the following describes a correct method for solving the equation below?

$$-\frac{1}{2} = 6 - \frac{2}{3}x$$

a. Add 6 to both sides, then divide both sides by $\frac{3}{2}$
b. Subtract 6 from both sides, then multiply both sides by $-\frac{2}{3}$
c. Add –6 to both sides, then multiply both sides by $-\frac{3}{2}$
d. Subtract 6 from both sides, then add $\frac{2}{3}$ to both sides.

Name the inverse operation you can use to solve the equation.

____ 8. $x - 4 = 28$
a. addition
b. subtraction
c. multiplication
d. division

Solve the equation.

____ 9. $7d + 5 = -2d + 5$
a. 0
b. infinitely many solutions
c. no solution
d. 9

____ 10. $\frac{1}{5}\left(8q - 10\right) = \frac{8}{5}q + 8$
a. 10
b. 18
c. infinitely many solutions
d. no solution

____ 11. $-8(5v + 5) = 5(-8v - 8)$
a. 13
b. no solution
c. infinitely many solutions
d. –13

Name the word that matches the definition given.

____ 12. Figures that have the same size and the same shape
a. congruent figures
b. corresponding angles
c. corresponding sides
d. transformation
e. image
f. translation

____ 13. Matching angles of two congruent figures
a. congruent figures
b. corresponding angles
c. corresponding sides
d. transformation
e. image
f. translation

____ 14. Matching sides of two congruent figures
a. congruent figures
b. corresponding angles
c. corresponding sides
d. transformation
e. image
f. translation

____ 15. A transformation in which a figure slides but does not turn; Every point of the figure moves the same distance and in the same direction.
a. congruent figures
b. corresponding angles
c. corresponding sides
d. transformation
e. image
f. translation

____ 16. A ____ changes a figure into another figure.
a. congruent figures
b. corresponding angles
c. corresponding sides
d. transformation
e. image
f. translation

____ 17. The new figure formed by a transformation
a. congruent figures
b. corresponding angles
c. corresponding sides
d. transformation
e. image
f. translation

____ 18. A ____ creates a mirror image of the original figure
a. reflection
b. line of reflection
c. rotation
d. transformation
e. image
f. translation

____ 19. A line that a figure is reflected in to create a mirror image of the original figure
a. reflection
b. line of reflection
c. rotation
d. transformation
e. image
f. translation

____ 20. A point about which a figure is rotated.
a. center of rotation
b. angle of rotation
c. similar figures
d. dilation
e. center of dilation
f. scale factor

____ 21. The number of degrees a figure rotates.
a. center of rotation
b. angle of rotation
c. similar figures
d. dilation
e. center of dilation
f. scale factor

____ 22. A transformation in which a figure is rotated about a point called the center of rotation.
a. reflection
b. line of reflection
c. rotation
d. transformation
e. image
f. translation

____ 23. Figures that have the same shape but not necessarily the same size.
a. center of rotation
b. angle of rotation
c. similar figures
d. congruent figures
e. center of dilation
f. scale factor

____ 24. The ratio of the side lengths of the image of a dilation to the corresponding side lengths of the original figure.
a. center of rotation
b. angle of rotation
c. similar figures
d. dilation
e. center of dilation
f. scale factor

____ 25. A transformation in which a figure is made larger or smaller with respect to a fixed point called the center of dilation.
a. center of rotation
b. angle of rotation
c. similar figures
d. dilation
e. center of dilation
f. scale factor

____ 26. A point with respect to which a figure is dilated.
a. center of rotation
b. angle of rotation
c. similar figures
d. dilation
e. center of dilation
f. scale factor

____ 27. A line that intersects two or more lines
a. transversal
b. interior angles
c. exterior angles
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 28. When two parallel lines are cut by a transversal, four ____ are formed on the inside of the parallel lines
a. transversal
b. interior angles
c. exterior angles
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 29. When two parallel lines are cut by a transversal, four ____ are formed on the outside of the parallel lines.
a. transversal
b. interior angles
c. exterior angles
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 30. The angles inside a polygon.
a. transversal
b. concave polygon
c. regular polygon
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 31. The angles outside a polygon that are adjacent to the interior angles.
a. transversal
b. concave polygon
c. regular polygon
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 32. A polygon in which every line segment connecting any two vertices lies entirely inside the polygon.
a. transversal
b. interior angles
c. exterior angles
d. interior angles of a polygon
e. concave polygon
f. convex polygon

____ 33. A polygon in which at least one line segment connecting any two vertices lies outside the polygon.
a. concave polygon
b. regular polygon
c. indirect measure
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 34. A polygon in which all the sides are congruent, and all the interior angles are congruent.
a. concave polygon
b. regular polygon
c. indirect measurement
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

____ 35. ____ uses similar figures to find a missing measure when it is difficult to find directly.
a. concave polygon
b. regular polygon
c. indirect measurement
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

The polygons are similar. Find *x*.

____ 36.

a. 17
b. 9
c. 19
d. 18

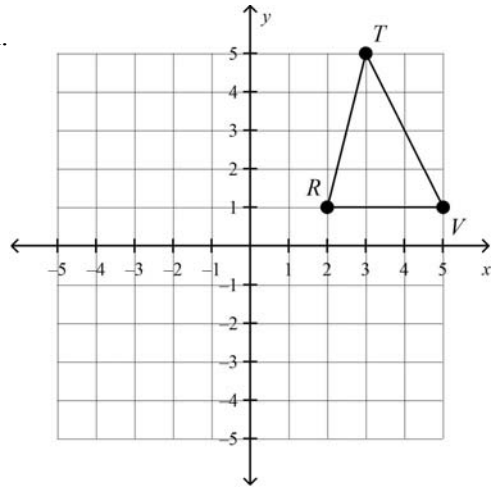
____ 37. Which description is the correct way to solve the equation below?

$7x - 3 = -31$

a. Add 3 to both sides then divide both sides by 7.
b. Subtract 3 from both sides then divide both sides by 7.
c. Add 3 to both sides then multiply both sides by 7.
d. Subtract 3 from both sides then multiply both sides by 7.

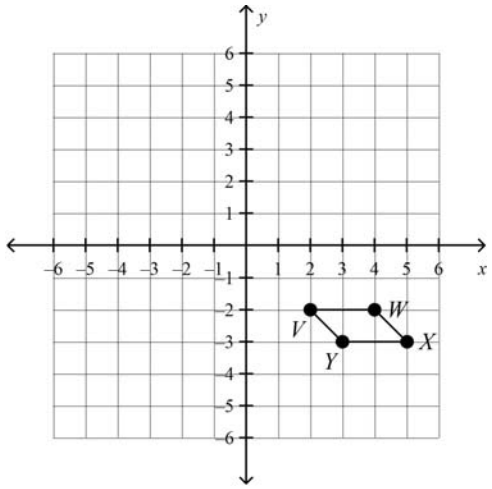
Find the coordinates of the image after the transformation.

____ 38. Translate 4 units left and 3 units down.



a. $R'(6, -2)$, $T'(7, 2)$, $V'(9, -2)$
b. $R'(-2, 4)$, $T'(-1, 8)$, $V'(1, 4)$
c. $R'(-1, -3)$, $T'(0, 1)$, $V'(2, -3)$
d. $R'(-2, -2)$, $T'(-1, 2)$, $V'(1, -2)$

____ 39. Rotate 270° clockwise about the origin.



a. $V'(2, 2)$, $W'(4, 2)$, $X'(5, 3)$, $Y'(3, 3)$
b. $V'(2, -2)$, $W'(2, -4)$, $X'(3, -5)$, $Y'(3, -3)$
c. $V'(-2, -2)$, $W'(-2, -4)$, $X'(-3, -5)$, $Y'(-3, -3)$
d. $V'(2, 2)$, $W'(2, 4)$, $X'(3, 5)$, $Y'(3, 3)$

Find the coordinates of the figure after reflecting in the *x*-axis.

____ 40. $D(4, 4)$, $E(6, 4)$, $F(0, 6)$
a. $D'(-4, 4)$, $E'(-6, 4)$, $F'(-0, 6)$
b. $D'(4, -4)$, $E'(6, -4)$, $F'(0, -6)$
c. $D'(-4, -4)$, $E'(-6, -4)$, $F'(-0, -6)$
d. $D'(4, 4)$, $E'(6, 4)$, $F'(0, 6)$

Find the coordinates of the figure after reflecting in the *y*-axis.

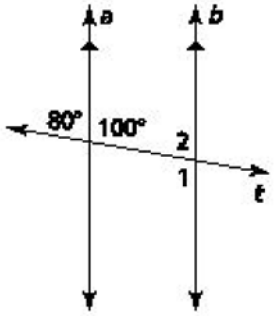
____ 41. $H(-1, 5)$, $J(0, 1)$, $K(-5, 4)$
a. $H'(1, -5)$, $J'(-0, -1)$, $K'(5, -4)$
b. $H'(-1, -5)$, $J'(0, -1)$, $K'(-5, -4)$
c. $H'(1, 5)$, $J'(-0, 1)$, $K'(5, 4)$
d. $H'(-1, 5)$, $J'(0, 1)$, $K'(-5, 4)$

____ 42. The coordinates below represent the dimensions of a room on a building blueprint. To make the room fit the needs of the owner, the builder needs to make changes. Reflect in the x-axis. Then dilate with respect to the origin using a scale factor of $\frac{1}{2}$.

$A(-5,-5), B(-5,0), C(1,0), D(1,-5)$

a. $A''(-4.5,5.5), B''(-4.5,5.5), C''(1.5,0.5), D''(1.5,5.5)$
b. $A''(5.5,-4.5), B''(5.5,0.5), C''(-0.5,0.5), D''(-0.5,-4.5)$
c. $A''(-2.5,2.5), B''(-2.5,0), C''(0.5,0), D''(0.5,2.5)$
d. $A''(2.5,-2.5), B''(2.5,0), C''(-0.5,0), D''(-0.5,-2.5)$

____ 43. What is the measure of $\angle 1$?



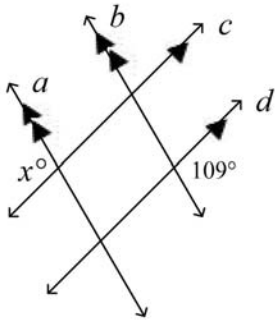
a. 80°
b. 90°
c. 100°
d. 180°

____ 44. The vertices of a triangle are $A(-4,5)$, $B(-4,1)$, $C(-1,1)$. Rotate the triangle 180° about the origin. What are the coordinates of A'?

a. $(4,-5)$
b. $(5,4)$
c. $(-5,-4)$
d. $(-5,5)$

Find the value of *x*.

____ 45.



a. 105
b. 109
c. 71
d. 19

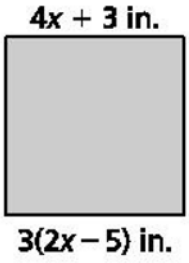
Numeric Response

Solve the equation. Check your solution.

1. $8p - 47 = 15p + 2$
2. $3.9k = 2.1k + 17.1$
3. $4(4m - 3) = 6m$

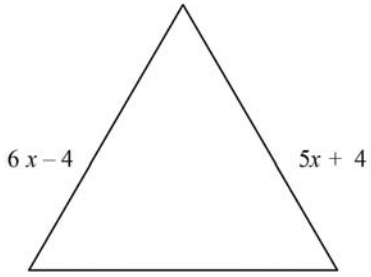
4. $-4 + 5d = 8d + 14$

5. Find the perimeter of the square.

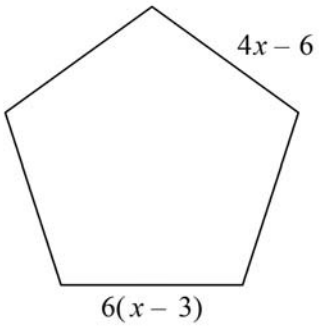


A polygon is *regular* if each of its sides has the same length. Find the perimeter of the regular polygon.

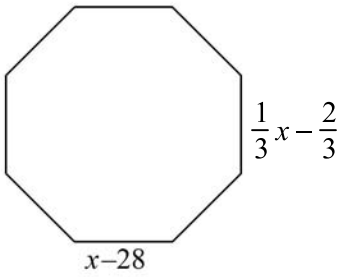
6.



7.

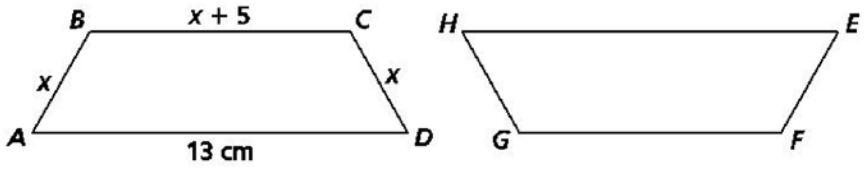


8.



9. The scale on a map is 1 in. : 50 mi. The actual distance between two cities is 350 miles. What is the distance between the cities on the map?

Trapezoids *ABCD* and *EFGH* are congruent.

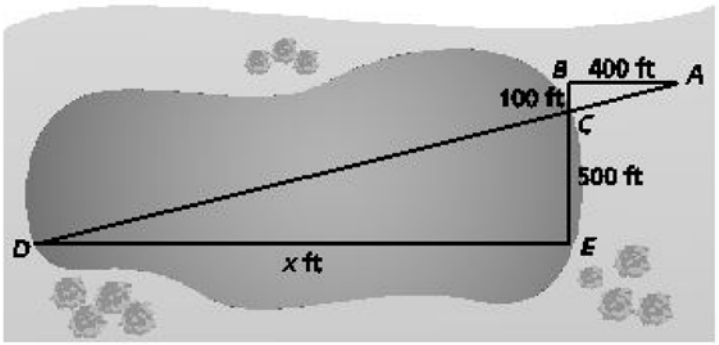


10. What is the length of side *GF*?

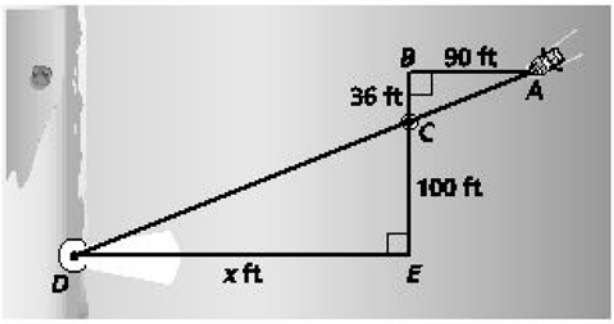
11. The perimeter of *ABCD* is 30 centimeters. What is the value of *x*?

12. The sum of the interior angle measures of a polygon is 5220°. How many sides does the polygon have?

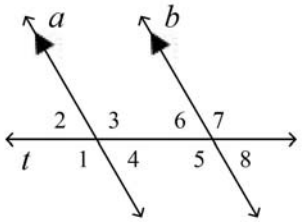
13. You want to paddle a canoe across a small lake and want to know how far it is to the other side. You take measurements on your side of the lake and make the drawing shown. What is the distance *x* across the lake?



14. You are on a boat in the ocean, at point *A*. You locate a lighthouse at point *D*, beyond the line of sight of the marker at point *C*. You travel 90 feet west to point *B* and then 36 feet south to point *C*. You travel 100 feet more to arrive at point *E*, which is due east of the lighthouse. What is the distance from point *E* to the lighthouse?



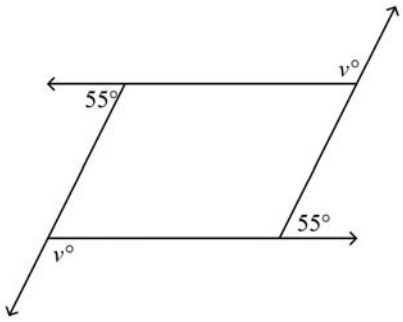
Complete the statement.



15. If the measure of $\angle 3 = 122°$, then the measure of $\angle 6 =$ ___?___.

16. If the measure of $\angle 4 = 56°$, then the measure of $\angle 5 =$ ___?___.

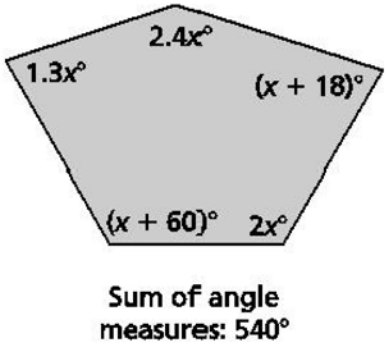
17. Find the measure of the exterior angle of the polygon.



Name: _____ **ID: A**

Short Answer

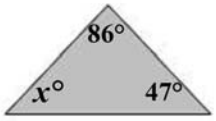
Find the value of *x*. Then find the angle measures of the polygon.

1. 

Solve the formula for the bold variable.

2. $P = 2l + 2\boldsymbol{w}$

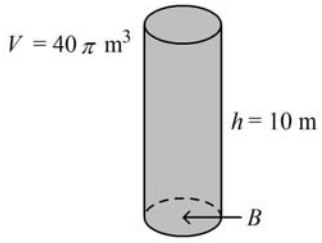
Find the value of *x*.

3. 

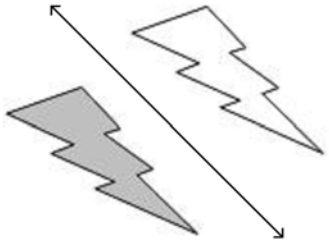
4. You have $140 in a savings account and save $10 per week. Your friend has $95 in a savings account and saves $19 per week. How many weeks will it take for you and your friend to have the same balance?

5. Why is it useful to rewrite a formula in terms of another variable?

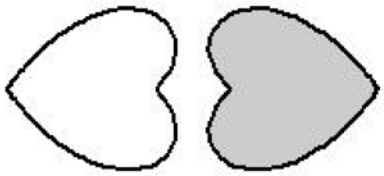
6. a. Write a formula for the volume V of a cylinder.
   b. Solve the formula for B.
   c. Use the new formula to find the area of the base of the cylinder.



Tell whether the shaded figure is a reflection of the nonshaded figure.

7. 

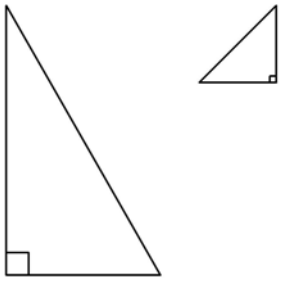
Tell whether the shaded figure is a *translation, reflection, rotation,* or *dilation* of the nonshaded figure.

8. 

Rectangle *ABCD* is similar to Rectangle *WXYZ*. Tell whether the statement is *true* or *false*.

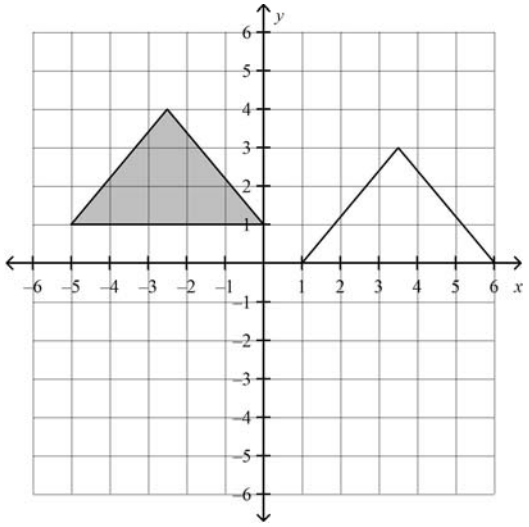
9. $\frac{\text{Perimeter of } ABCD}{\text{Perimeter of } WXYZ} = \left(\frac{CD}{YZ}\right)^2$

Tell whether the triangles are *congruent* or *not congruent*.

10. 

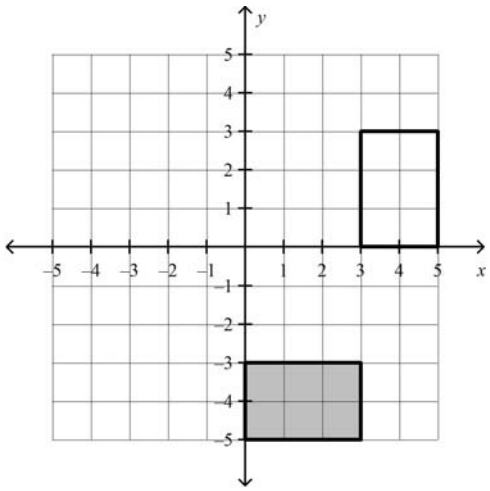
Describe the translation from the shaded figure to the unshaded figure.

11.



Tell whether the shaded figure is a rotation of the unshaded figure about the origin. If so, give the angle and direction of rotation.

12.

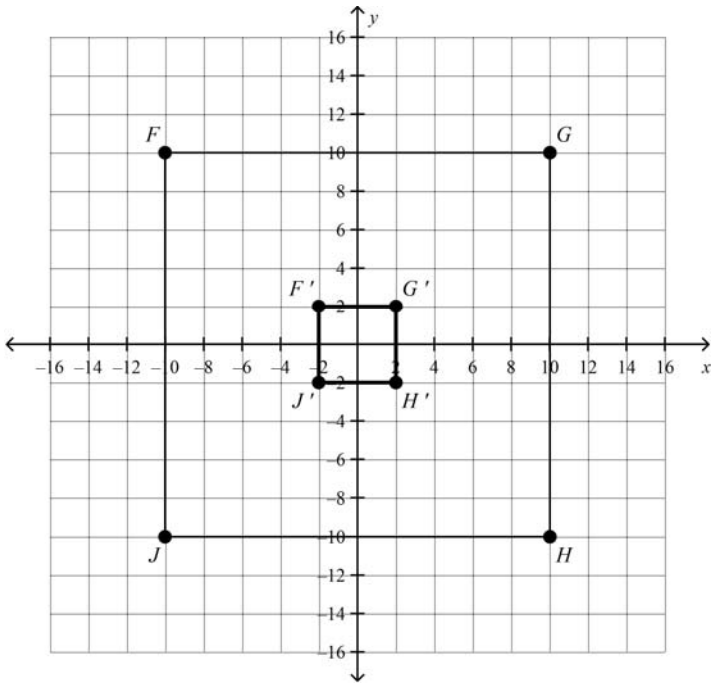


13. Neighboring farms have similar barnyards. The ratio of the corresponding side lengths is 7:11. What is the ratio of the areas?

14. One side of a rectangle is 2 inches. The area of the rectangle is 18 square inches. A similar rectangle has an area of 288 square inches.
    a. What is the ratio (small to large) of corresponding side lengths?
    b. What is the percent of increase of the corresponding side lengths from the smaller rectangle to the larger rectangle?

Identify the type of dilation and find the scale factor.

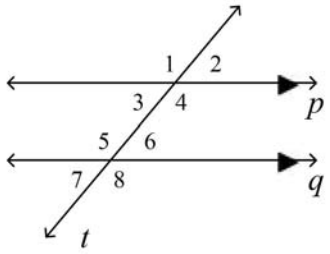
15.



Find the measures of the interior angles.

16.

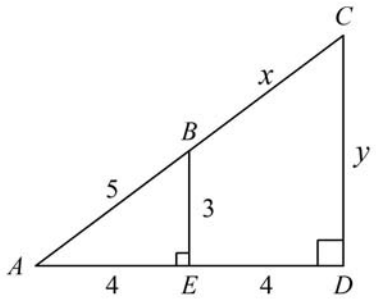
Use the figure.



17. How many angles are formed by the transversal?

18. If a transversal is perpendicular to two parallel lines, what can you conclude about the angles formed? Explain.

19. In the diagram, $\triangle ABE \sim \triangle ACD$.



a. Find x.
b. What is the area of trapezoid $BCDE$?

Unit 2 Review (Chapters 1, 2, and 3)
Answer Section

MULTIPLE CHOICE

1. C
2. C
3. C
4. B
5. D
6. B
7. C
8. A
9. A
10. D
11. C
12. A
13. B
14. C
15. F
16. D
17. E
18. A
19. B
20. A
21. B
22. C
23. C
24. F
25. D
26. E
27. A
28. B
29. C
30. D
31. E
32. F
33. A
34. B
35. C
36. D
37. A
38. D
39. D

40. B
41. C
42. C
43. C
44. A
45. B

NUMERIC RESPONSE

1. –7
2. 9.5
3. 1.2
4. –6
5. 156 in.
6. 132 units
7. 90 units
8. 104 units
9. 7 in.
10. 9 cm
11. 4
12. 31 sides
13. 2000 ft
14. 250 ft
15. 58°
16. 124°
17. 125

SHORT ANSWER

1. $x = 60$; 144°, 78°, 120°, 120°, 78°
2. $w = \frac{P}{2} - l$
3. $x = 47$
4. 5 weeks
5. The rewritten formula is a general solution that can be reused.
6. a. $V = Bh$
   b. $B = \frac{V}{h}$
   c. 4π m^2
7. no
8. reflection
9. false
10. not congruent
11. 6 units right and 1 unit down

12. yes; 270° counterclockwise or 90° clockwise
13. $\frac{49}{121}$
14. a. $\frac{1}{4}$
    b. 300%
15. reduction; $\frac{1}{5}$
16. 13°, 13°, 154°
17. 8
18. They are all right angles because perpendicular lines form 90° angles.
19. a. 5
    b. 18 square units