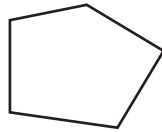


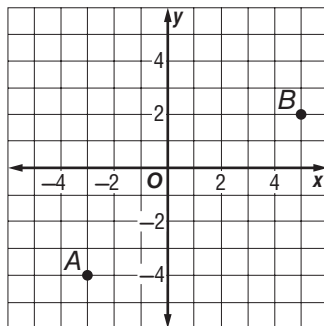
## Course 3 Benchmark Test – Third Quarter

1. **SHORT ANSWER** Alfonso leans a 20-foot long ladder against a wall with the base of the ladder 6 feet from the wall. How far up the wall does the ladder reach? Round to the nearest tenth if necessary.  
**about 19.1 ft**

2. What is the sum of the measures of the interior angles of a pentagon?

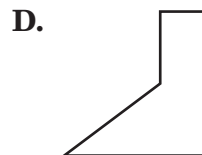
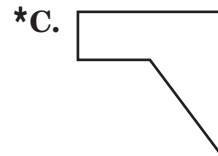
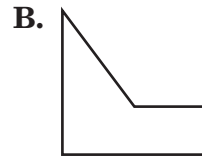
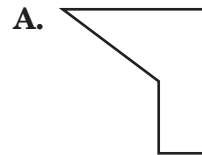
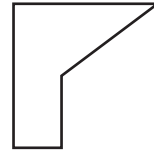


- A.  $900^\circ$   
 B.  $720^\circ$   
 \*C.  $540^\circ$   
 D.  $450^\circ$
3. What is the distance between points *A* and *B* shown on the coordinate plane?



- F. 8 units  
 \*G. 10 units  
 H. 12 units  
 I. 14 units

4. Which of the following figures show a  $90^\circ$  clockwise rotation of the figure shown below?



# Course 3 Benchmark Test – Third Quarter *(continued)*

5. If point  $H(-6, 2)$  is translated 4 units up and 3 units right, what are the coordinates of the translated image?

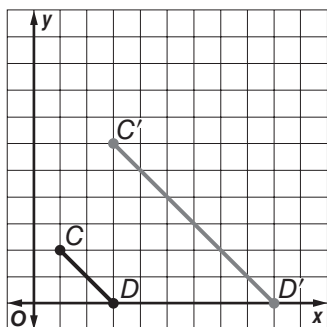
F.  $H'(-2, 5)$

\*G.  $H'(-3, 6)$

H.  $H'(-9, -2)$

I.  $H'(-9, 6)$

6. The dilation of  $\overline{CD}$  is shown below. What is the scale factor of the dilation?



A.  $\frac{1}{3}$

B.  $\frac{1}{2}$

C. 2

\*D. 3

7. Which of the following terms describes two lines that intersect to form right angles?

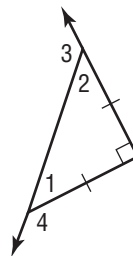
F. parallel

\*G. perpendicular

H. skew

I. straight

8. What is the measure of angle 3?



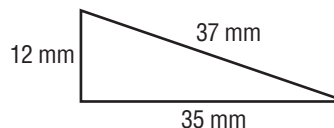
A.  $45^\circ$

B.  $90^\circ$

\*C.  $135^\circ$

D.  $225^\circ$

9. **SHORT ANSWER** Determine whether the following figure is a right triangle. Justify your answer.



**Yes, the figure is a right triangle because the sides satisfy the Pythagorean Theorem:**  
 $12^2 + 35^2 = 37^2$ .

10. Point  $N(6, -5)$  is reflected across the  $x$ -axis. What are the coordinates of the image?

F.  $N'(-6, -5)$

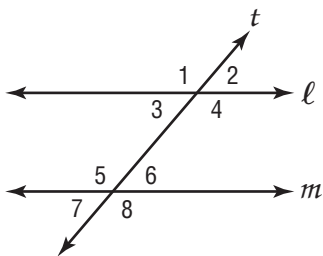
G.  $N'(-5, 6)$

H.  $N'(5, -6)$

\*I.  $N'(6, 5)$

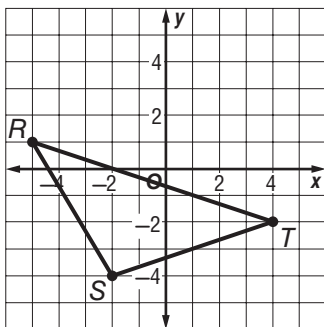
# Course 3 Benchmark Test – Third Quarter (continued)

11. Parallel lines  $l$  and  $m$  are intersected by transversal  $t$  as shown below. Which of the following angles are *not* congruent?



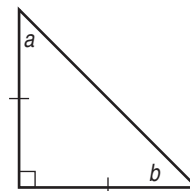
- \*A. 1 and 2
- B. 2 and 3
- C. 3 and 6
- D. 4 and 8

12. Suppose triangle  $RST$  shown on the coordinate grid is reflected across the  $y$ -axis. Which ordered pair does *not* represent a vertex of the reflected triangle?



- F. (5, 1)
- G. (-4, -2)
- H. (2, -4)
- \*I. (-2, 4)

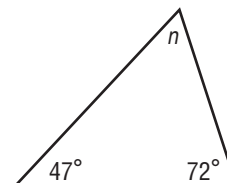
13. **SHORT ANSWER** Using the figure below, write a paragraph proof to show that  $m\angle a = m\angle b = 45^\circ$ .



**Sample answer:** The triangle is isosceles, so  $m\angle a = m\angle b$ . The sum of the angles of a triangle is  $180^\circ$ . So,  $a + b + 90 = 180$ , or  $a + b = 90$ . Since  $a = b$ ,  $a + a = 90$ , or  $a = 45$ . So,  $m\angle a = m\angle b = 45^\circ$ .

14. What is the approximate distance between points  $W(-4, 1)$  and  $Z(3, 7)$ ? Round to the nearest tenth.
- A. 10.8 units
  - \*B. 9.2 units
  - C. 8.3 units
  - D. 6.1 units

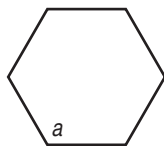
15. What is the value of  $n$  in the triangle below?



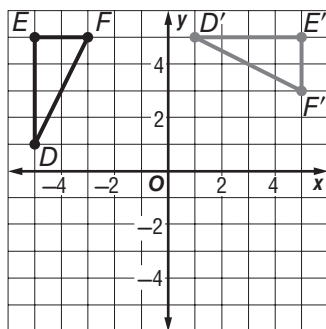
- F.  $47^\circ$
- G.  $51^\circ$
- \*H.  $61^\circ$
- I.  $72^\circ$

# Course 3 Benchmark Test – Third Quarter *(continued)*

16. What is the measure of an interior angle of a regular hexagon?



- \*A.  $120^\circ$
  - B.  $135^\circ$
  - C.  $720^\circ$
  - D.  $810^\circ$
17. Which rotation best describes the transformation shown below?

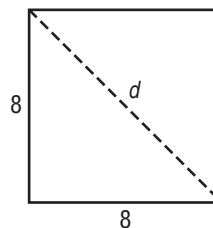


- F.  $90^\circ$  counterclockwise rotation
  - G.  $270^\circ$  clockwise rotation
  - H.  $180^\circ$  rotation
  - \*I.  $90^\circ$  clockwise rotation
18. Which set of numbers could be the sides of a right triangle?
- A. 6, 8, 12
  - \*B. 8, 15, 17
  - C. 4, 12, 16
  - D. 9, 11, 21

19. What is the approximate length of  $\overline{NP}$  with endpoints  $N(7, 3)$  and  $P(-6, -2)$ ? Round to the nearest tenth.

- F. 5.7 units
- G. 6.5 units
- H. 10.2 units
- \*I. 13.9 units

20. **SHORT ANSWER** What is the length of the diagonal of a square with 8-foot sides? Round to the nearest tenth.

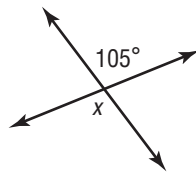


11.3 ft

21. Which transformation does *not* result in an image congruent to the original figure?
- A. translation
  - B. rotation
  - C. reflection
  - \*D. dilation

## Course 3 Benchmark Test – Third Quarter (continued)

22. What is the value of  $x$  in the figure below?



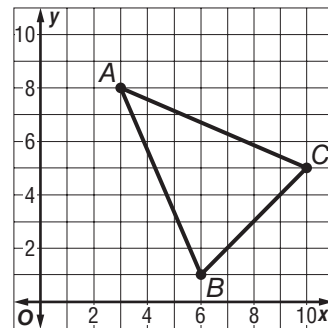
- F.  $75^\circ$
  - G.  $85^\circ$
  - \*H.  $105^\circ$**
  - I.  $115^\circ$
23. Mary enlarged a 4- by 6-inch photo to a 10- by 15-inch photo. What is the scale factor of the dilation?

- A. 2
- \*B. 2.5**
- C. 6
- D. 9

24. The legs of a right triangle measure 7 units and 24 units. What is the measure of the hypotenuse? Round to the nearest tenth if necessary.

- F. 17 units
- G. 20.4 units
- H. 23.0 units
- \*I. 25 units**

25. **SHORT ANSWER** Prove that triangle  $ABC$  is an isosceles triangle.



**Sample answer:** Using the distance formula,  $AB = \sqrt{58}$  and  $AC = \sqrt{58}$ . Since  $AB = AC$ , the triangle is isosceles.