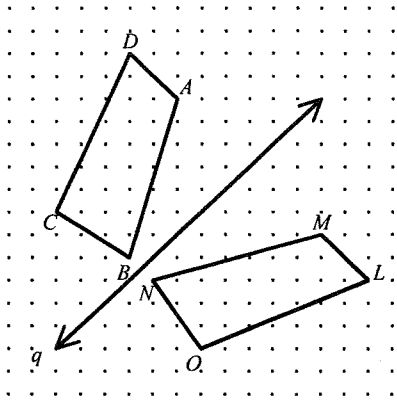
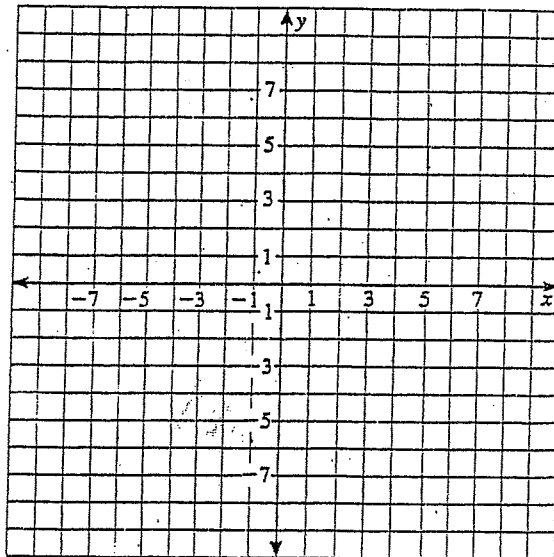


# Review Units 7-9

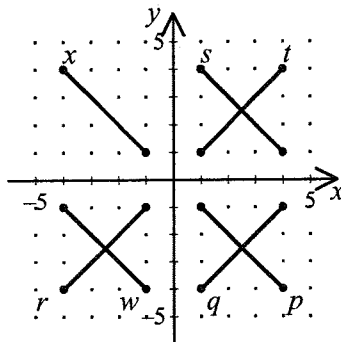
1. The reflection image of  $\overline{MN}$  in line  $q$  is \_\_\_\_\_.



2. Graph the triangle whose vertices have the coordinates given below. Then draw its reflection in the  $x$ -axis.  
 $(-8, 2)$ ,  $(-2, 2)$ ,  $(-8, 8)$



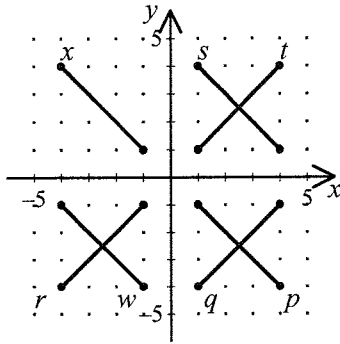
3. Use the figure below.



Segment  $x$  is reflected in the  $x$ -axis, followed by a reflection in the  $y$ -axis, followed by another reflection in the  $x$ -axis. Its final image is \_\_\_\_\_.

- [A] segment  $s$       [B] segment  $x$       [C] segment  $t$       [D] segment  $p$

4. Use the figure below.



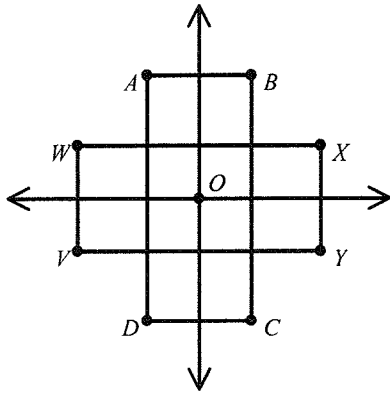
If segment  $x$  is reflected in the line  $y = x$ , its image is \_\_\_\_\_.

- [A] segment  $q$       [B] segment  $p$       [C] segment  $s$       [D] segment  $r$

5. If a triangle has three lines of symmetry, then it is \_\_\_\_\_.

- [A] scalene      [B] equilateral      [C] a right triangle      [D] isosceles

6. Rectangle  $VWXY$  is rotated  $90^\circ$  clockwise about point  $O$ . Find the image of  $\overline{VY}$ .



7. Find the coordinates of the image of a triangle with vertices  $A(0, -3)$ ,  $B(2, 0)$ , and  $C(4, -9)$  for a rotation of  $90^\circ$  counterclockwise about the origin.

8. During ceramics class, Susan painted plates for her mother. Which design exhibits rotational symmetry?

[A]



[B]



[C]

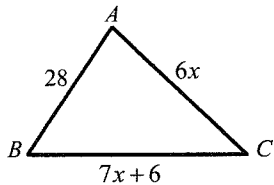


[D]



9. Graph  $\triangle PQR$  with  $P(6, -4)$ ,  $Q(8, -8)$ , and  $R(4, -7)$ . Graph  $\triangle P'Q'R'$  after the translation described by the vector  $\langle -11, 11 \rangle$ .

10. The ratios of the side lengths of triangle  $ABC$  are 7:9:12 ( $AB:AC:BC$ ). Solve for  $x$ .



11. Solve the proportion  $\frac{5}{x-1} = \frac{7}{x}$ .

12. A worker in an assembly line takes 4 hours to produce 29 parts. At that rate, how many parts can she produce in 8 hours?

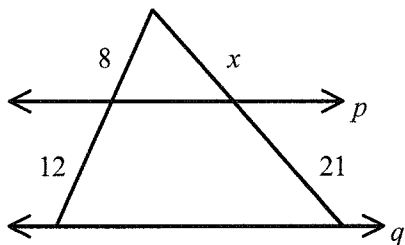
- [A] 116 parts      [B] 8 parts      [C] 58 parts      [D] 232 parts

13. If  $\frac{a}{b} = \frac{c}{d}$ , then \_\_\_\_\_.

- [A]  $\frac{a+b}{b} = \frac{c+b}{d}$     [B]  $\frac{a+b}{b} = \frac{c+d}{d}$     [C]  $ac=bd$     [D]  $\frac{a}{b} = \frac{a+c}{b+d}$

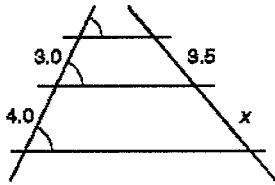
14. The perimeter of  $\triangle PQR$  is 60,  $PQ = 20$ ,  $\triangle PQR \sim \triangle STU$ , and  $ST = 30$ . What is the perimeter of  $\triangle STU$ ?

15. If  $p \parallel q$ , solve for  $x$ .

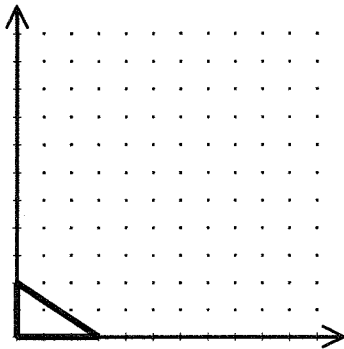


16. A building casts a shadow 100 meters long. At the same time, a pole 4 meters high casts a shadow 8 meters long. What is the height of the building?

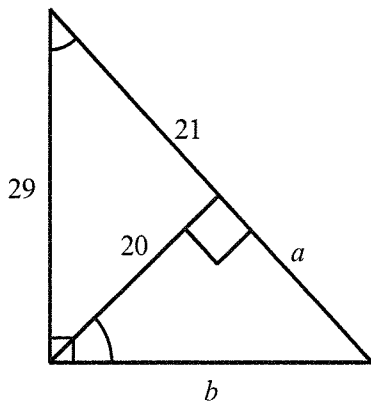
17. Find the value of  $x$  below to one decimal place.



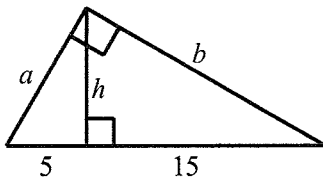
18. Draw the image of the figure for a dilation centered at the origin with scale factor 3.



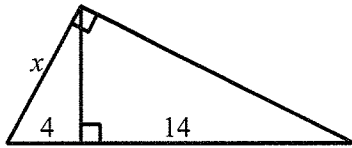
19. Solve for  $a$  and  $b$ .



20. Find  $a$ ,  $b$ , and  $h$ .



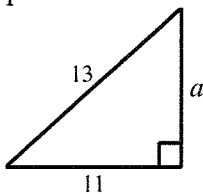
21. Find the value of  $x$ . [A]  $2\sqrt{14}$  [B]  $3\sqrt{2}$  [C]  $6\sqrt{2}$  [D]  $6\sqrt{7}$



22. The geometric mean of 5 and 15 is \_\_\_\_\_.

- [A]  $\frac{15}{5} = 3$  [B]  $5\sqrt{3}$  [C] 10 [D] 75

23. Find the length of the leg of this right triangle. Give an approximation to 3 decimal places.



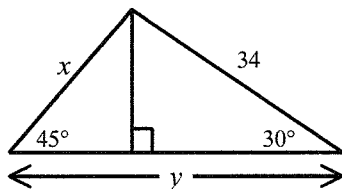
24. Which set of lengths cannot form a right triangle?

- [A] 11 mm, 24 mm, 26 mm [B] 20 mm, 48 mm, 52 mm  
[C] 10 mm, 24 mm, 26 mm [D] 5 mm, 12 mm, 13 mm

25. For each set of numbers, determine whether the numbers represent the lengths of the sides of an acute triangle, a right triangle, an obtuse triangle, or no triangle.

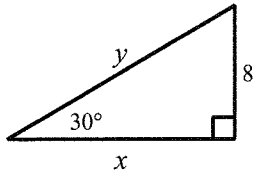
- A.  $\sqrt{43}$ ,  $\sqrt{29}$ ,  $\sqrt{14}$   
B. 5, 9, 13  
C. 20.8, 39, 74.2

26. Find the value of  $x$  and  $y$ .



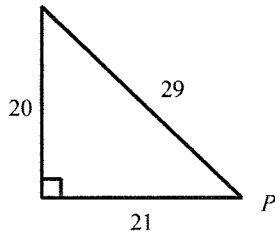
27. What is the length of the diagonal of a square with side lengths  $7\sqrt{2}$ ?

28. Find the value of  $x$  and  $y$ .



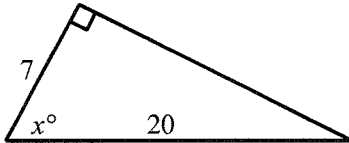
29. What is the length of an altitude of an equilateral triangle with side lengths  $8\sqrt{3}$  ?

30. Find  $\sin P$ ,  $\cos P$ ,  $\tan P$ .



31. To find the height of a tower, a surveyor positions a transit that is 2 m tall at a spot 100 m from the base of the tower. She measures the angle of elevation to the top of the tower to be  $31^\circ$ . What is the height of the tower, to the nearest meter?

32. Solve for  $x$  to the nearest degree.      [A] 20      [B] 71      [C] 70      [D] 19



33. Given  $J(-3, 6)$  and  $K(5, -7)$ , find the magnitude of  $\overline{JK}$  to the nearest tenth.

34. A boat in calm seas travels 10 km east and 26 km north. Find the distance and direction of the trip, relative to the north.