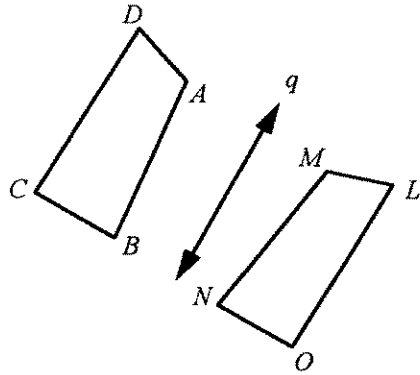


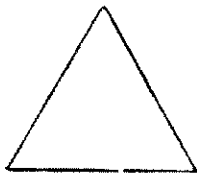
Geometry Final Review

Name:

1. The reflection image of  $\overline{NO}$  in line  $q$  is  $\overline{BC}$ . Find the measure of  $\overline{BC}$  if  $NO = 5$ .



2. The <sup>triangle</sup> ~~triangle~~ shown below is equiangular. How many lines of symmetry does it have?



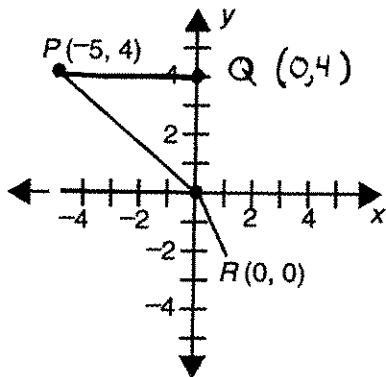
[A] 3

[B] 6

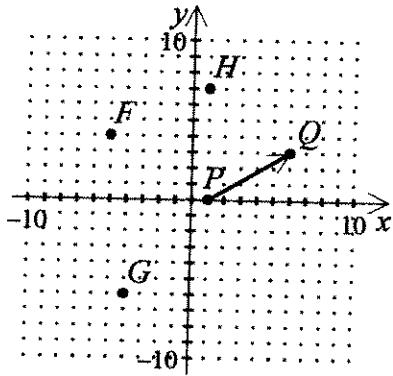
[C] 1

[D] 2

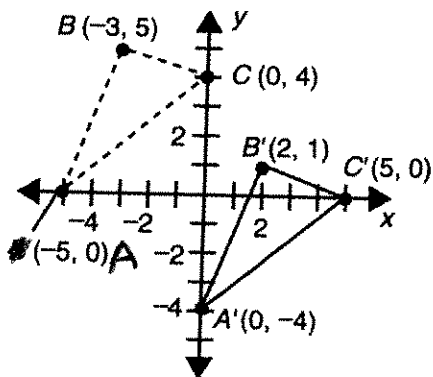
3.  $\triangle PQR$  below is rotated clockwise  $90^\circ$  about the origin. Find the coordinates of the vertices of the image  $\triangle P'Q'R'$ .



4. Suppose the points on the graph are translated using translation vector  $\overrightarrow{PQ}$ . Find the image of:
- A.  $G$
  - B.  $(4, 5)$
  - C.  $\overline{GH}$

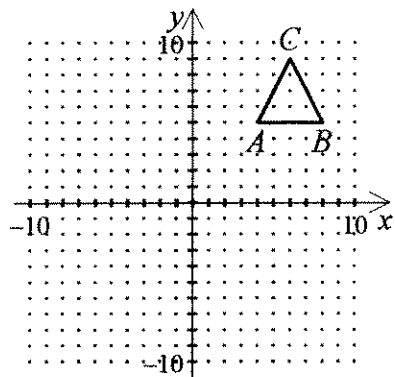


5. Find the translation vector,  $\vec{v}$ , that maps  $\triangle ABC$  onto  $\triangle A'B'C'$ .

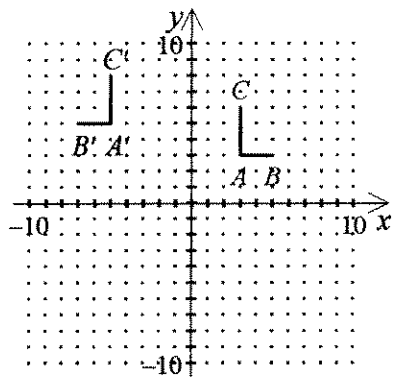


6. Find the image of  $\triangle ABC$  after the glide reflection described.

Translation:  $(x, y) \rightarrow (x, y - 8)$ ; Reflection: in  $x = 1$



7. Which glide reflection could map figure  $ABC$  to figure  $A'B'C'$ ?



[A] Translation:  $(x, y) \rightarrow (x, y + 2)$

Reflection: over the line  $x = -1$

[B] Translation:  $(x, y) \rightarrow (x + 3, y)$

Reflection: over the line  $y = -1$

[C] Translation:  $(x, y) \rightarrow (x + 2, y)$

Reflection: over the line  $y = -1$

[D] Translation:  $(x, y) \rightarrow (x, y + 3)$

Reflection: over the line  $x = -1$

8. Classify the frieze pattern shown.

[A] TR

[B] TV

[C] TG

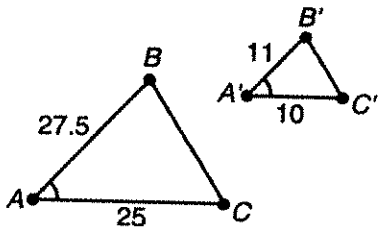
[D] THG



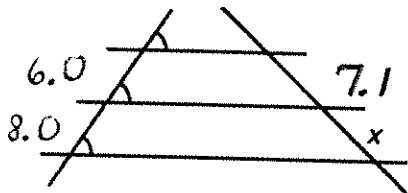
Geometry Final

Name: \_\_\_\_\_

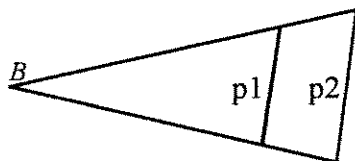
9. Write the ratio of the value of 9 nickels to the value of 9 quarters.
10. Solve the proportion  $\frac{15}{x+11} = \frac{7}{x}$ .
11. If  $\frac{P}{Q} = \frac{R}{S}$ , which of the following is NOT true?  
 [A]  $\frac{R}{S} = \frac{P}{Q}$       [B]  $\frac{Q}{P} = \frac{S}{R}$       [C]  $PS = RQ$       [D]  $PR = SQ$
12. The perimeter of  $\triangle PQR$  is 65,  $PQ = 15$ ,  $\triangle PQR \sim \triangle STU$ , and  $ST = 6$ . What is the perimeter of  $\triangle STU$ ?  
 [A] 26      [B] 6.2      [C] 1.4      [D] 13
13. Shown below is an illustration of the \_\_\_\_\_.



- [A] AA Similarity Postulate      [B] SAS Congruence Theorem  
 [C] SSS Similarity Theorem      [D] SAS Similarity Theorem
14. Find the value of  $x$  below to one decimal place.

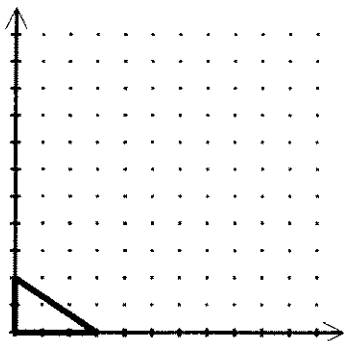


15. Farmer Gastón has a triangular field with two buried irrigation pipes marked p1 and p2 on the map below.

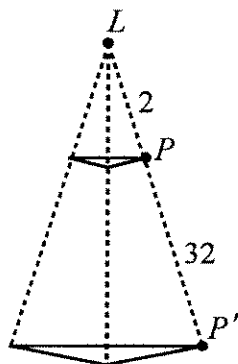


She wants to find whether the straight pipes are parallel. The distance from barn  $B$  to the north end of pipe 1 is 143 ft, and from there to the north end of pipe 2 is 39 ft. The distance from the barn to the south end of pipe 1 is 121 ft, and from there to the south end of pipe 2 is 33 ft. Are the pipes parallel? How do you know? The map is not drawn to scale.

16. Draw the image of the figure for a dilation centered at the origin with scale factor 2.



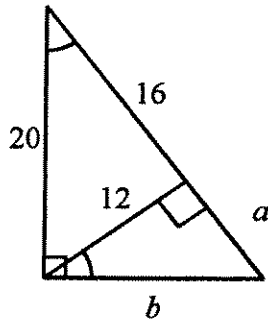
17. A lighting designer wants a spotlight to illuminate a triangular section of stage floor. If a screen is placed in front of the light, what is the scale factor of the dilation shown? Hint:  $L$  represents the spotlight,  $P$  represents the screen, and  $P'$  represents the stage floor.



Geometry Final

Name: \_\_\_\_\_

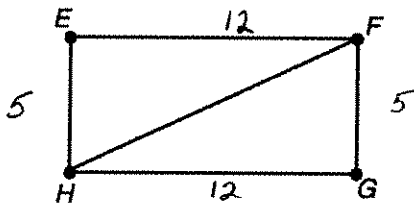
18. Solve for  $a$  and  $b$ .



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

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

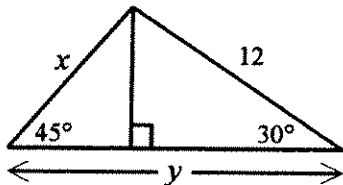
20. If  $EFGH$  is a rectangle, what is  $FH$ ?



21. 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.  $\sqrt{30}$ ,  $\sqrt{27}$ ,  $\sqrt{5}$   
 B. 8, 15, 17  
 C. 1.8, 9.6, 20.1

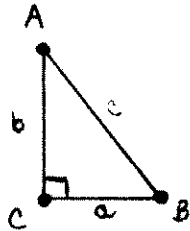
22. Find the value of  $x$  and  $y$ .



23. What is the length of an altitude of an equilateral triangle with side lengths  $4\sqrt{3}$  ?

24. Write the trigonometric ratio.

- A.  $\sin A$
- B.  $\tan B$
- C.  $\cos A$



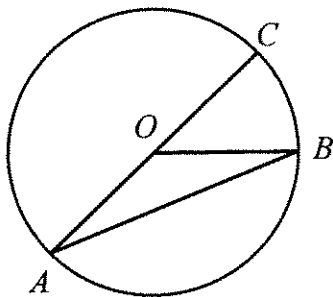
25. Find the missing angle and side measures of  $\triangle ABC$ , given that  $\angle A = 40^\circ$ ,  $\angle C = 90^\circ$ , and  $CB = 13$ .

- [A]  $\angle B = 130^\circ$ ,  $c = 20.2$ ,  $b = 15.5$
- [B]  $\angle B = 130^\circ$ ,  $c = 20.2$ ,  $b = 16$
- [C]  $\angle B = 50^\circ$ ,  $c = 20.7$ ,  $b = 15.5$
- [D]  $\angle B = 50^\circ$ ,  $c = 20.2$ ,  $b = 15.5$

26. Let  $J = (4, 9)$  and  $K = (-2, -8)$ . Find the ordered pair representation and the magnitude of  $\vec{JK}$ .

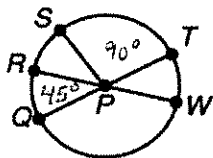
27. If  $\vec{r} = \langle 4, 8 \rangle$  and  $\vec{s} = \langle 3, -3 \rangle$ , what is  $\vec{r} + \vec{s}$  ?

28. Given: In  $\odot O$ ,  $m\widehat{BAC} = 316^\circ$ . Find  $m\angle AOB$ .

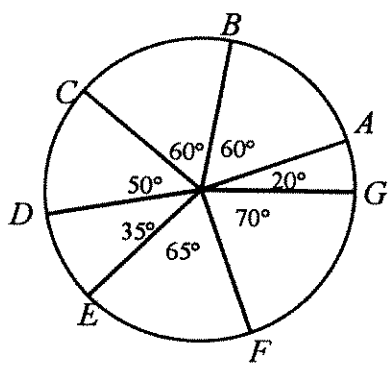


- [A]  $142^\circ$
- [B]  $71^\circ$
- [C]  $68^\circ$
- [D]  $136^\circ$

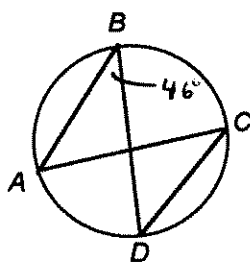
29. If  $\overline{QT}$  and  $\overline{RW}$  are diameters in  $\odot P$ , find  $m\widehat{QW}$ .



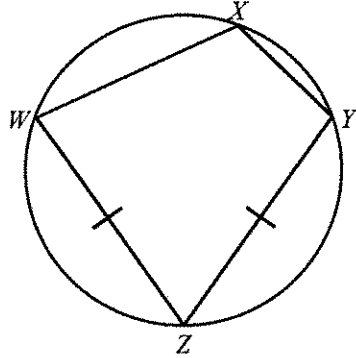
30. Identify the minor congruent arcs in the figure.



31. Find  $m\widehat{ACD}$  and  $m\angle C$ .



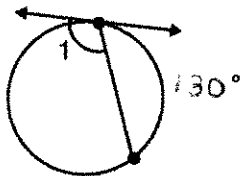
32. Given:  $m\angle X = 110^\circ$ ;  $\overline{WZ} \cong \overline{YZ}$ ;  $m\angle Y = 100^\circ$



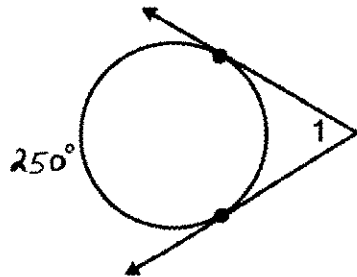
Refer to the diagram to find the measure of each of the following

- A.  $\angle Z$
- B.  $\widehat{WZ}$
- C.  $\angle W$
- D.  $\widehat{WX}$

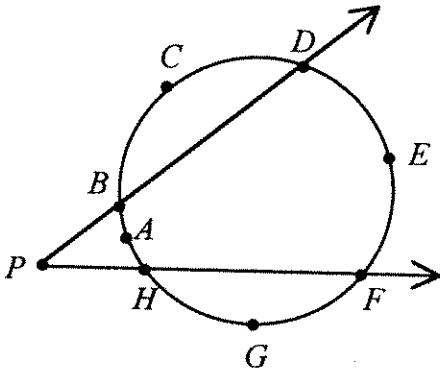
33. Find the measure of  $\angle 1$ .



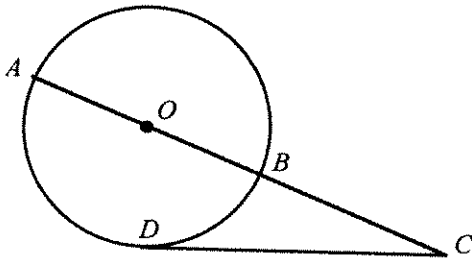
34. Find the measure of  $\angle 1$ .



35. In the figure shown (not drawn to scale),  $m\widehat{BCD} = 116^\circ$ ,  $m\widehat{DEF} = 92^\circ$ ,  $m\widehat{FGH} = 140^\circ$ , and  $m\widehat{HAB} = 12^\circ$ . Find  $m\angle FPD$ .



36. Find the diameter of the circle.  $BC = 12$ , and  $DC = 15$ . Round your answer to the nearest tenth.



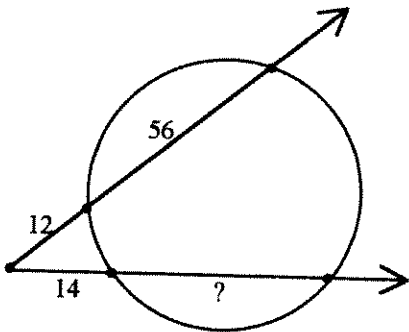
[A] 30.8

[B] 4.0

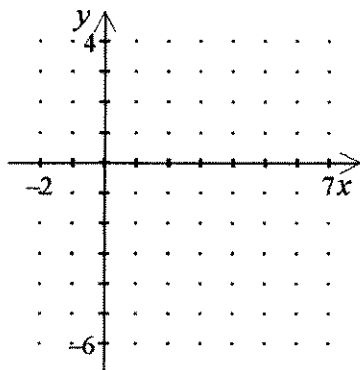
[C] 5.4

[D] 6.8

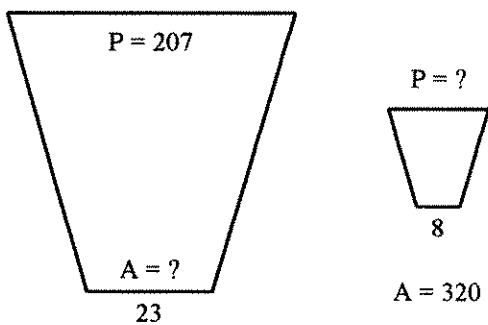
37. Find the length of the missing segment to the nearest tenth.



38. Sketch the graph of the equation  $(x - 3)^2 + (y + 4)^2 = 16$ . Label the coordinates of the center and the  $y$ -intercepts.

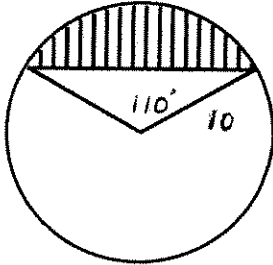


39. Find the number of sides of a regular polygon with each interior angle equal to  $165^\circ$ .
40. Find the area of a regular 11-gon with radius 6 cm.
41. The figures are similar. Find the missing values.

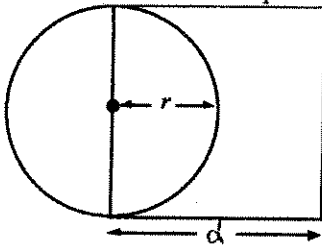


42. The circumference of a circle is  $100\pi$  cm. Find the diameter, the radius, and the length of an arc of  $100^\circ$ .

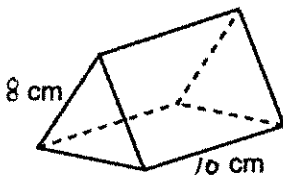
43. Find the area of the shaded region.



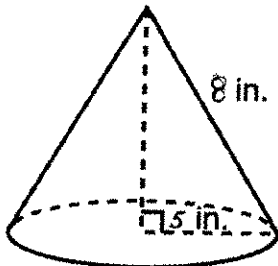
44. Half of a circle is inside a square and half is outside, as shown. If a point is selected at random inside the square, find the probability that the point is also inside the circle.



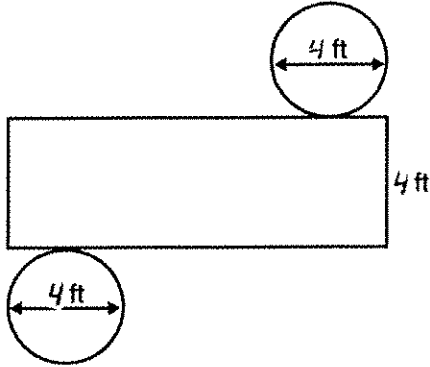
45. The right prism below has bases which are equilateral triangles of side length  $8$  cm. Its height is  $10$  cm. Find its surface area.



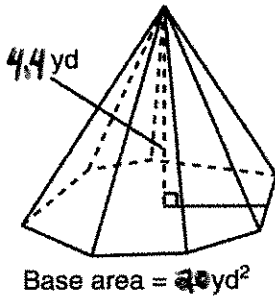
46. The surface area of the right cone below is \_\_\_\_\_.



47. Find the surface area and volume of the cylinder that can be folded from the net shown below.



48. The base of the pyramid below is a nonregular heptagon with an area of 20 square yards. The height of the pyramid is 4.4 yards. Find the volume of the pyramid.



49. The inside of an ice cream cone is filled with ice cream and has radius 6 cm and height 7 cm. Assuming that a half-scoop of ice cream is in the shape of a hemisphere, and that it fits perfectly on top of the cone (same radius), find the total volume of ice cream. Use 3.14 for  $\pi$  and round your answer to the nearest tenth.

- [A] 715.9 cm<sup>3</sup>      [B] 1243.4 cm<sup>3</sup>      [C] 1168.1 cm<sup>3</sup>      [D] 692.6 cm<sup>3</sup>

50. The shipping crates shown are similar.  
 A. Find the similarity ratio of the crate on the left to the crate on the right.  
 B. Find the ratio of their surface areas.  
 C. Find the ratio of their volumes.

