

Geometry Cumulative Study Guide

Test 19

Name: _____

Date: _____

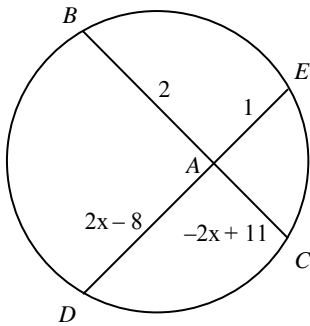
Period: _____

Numeric Response

1. Find the perimeter of rectangle $EFGH$ with coordinates $E(-3, -8)$, $F(-13, -8)$, $G(-13, -1)$, and $H(-3, -1)$.

2. From the ground 28 feet away from a tree, the angle of elevation to the top of the tree is 33° . Find the height of the tree to the nearest foot.

3. In the circle below, use the expressions for the segment lengths to write and solve an equation for x .



Problem

4. A patio is in the shape of an equilateral triangle with 8-foot sides. What is the area of the patio?

5. A horse in a computer animation will move from the point $(-8, 7)$ through the translations $\vec{p} = \langle 4, -7 \rangle$ and $\vec{q} = \langle 9, 3 \rangle$. What are the positions of the horse after each translation?

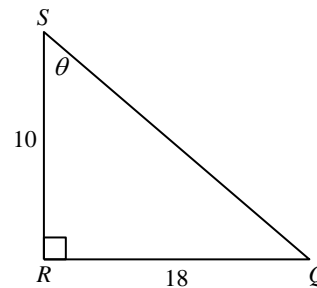
6. The equation of $\odot C$ is $(x-3)^2 + (y-2)^2 = 36$. If $\odot D$ is concentric with $\odot C$ and has a radius of 5, what is the equation of $\odot D$?

7. Find the surface area and volume of a hemisphere with an 8-inch diameter.

8. The supply curve for a product is represented by the function $y = \frac{1}{3}x + 40$ and the demand curve is

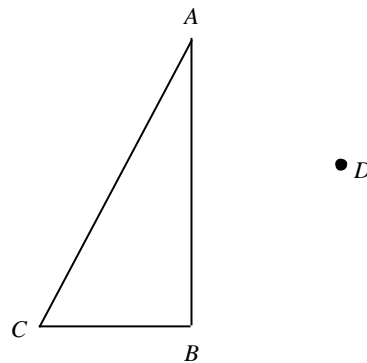
represented by the function $y = -\frac{1}{7}x + 60$, where y is the price of the product in dollars and x is the number of units sold. What is the optimum price of the product? How many will sell at this price?

9. In the diagram below, find θ to the nearest tenth of a degree.

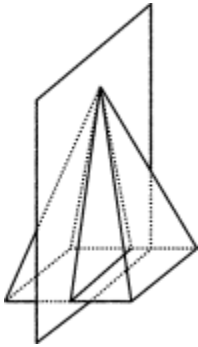


10. Add the vectors $\vec{p} = \langle 13, -12 \rangle$, $\vec{q} = \langle 10, 14 \rangle$, and $\vec{r} = \langle -3, -4 \rangle$.

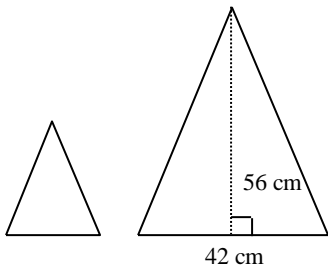
11. Apply a dilation to $\triangle ABC$ using a scale factor of $\frac{1}{2}$ and center D .



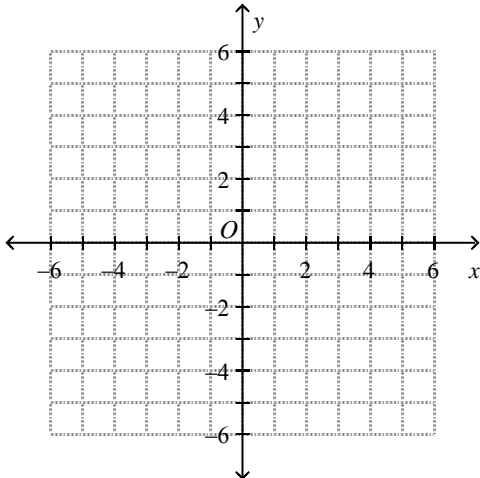
12. Describe the cross section of the solid below.



13. The two triangles shown below have a similarity ratio of 1 : 7. Determine the ratio of their areas and the area of the smaller triangle.



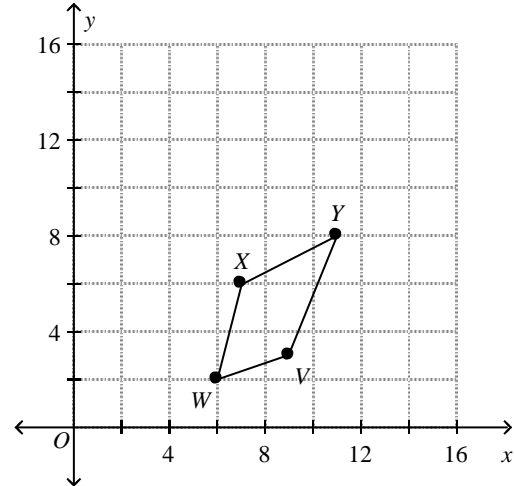
14. Graph the inequality $y < -\frac{5}{4}x - 2$.



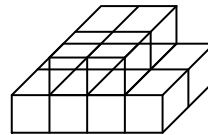
15. \vec{v} makes a 33° angle with the horizontal and has a magnitude of 4. Decompose the vector. Round to the nearest hundredth.

16. Find $\sin \theta$ if $\cos \theta = 0.57$.

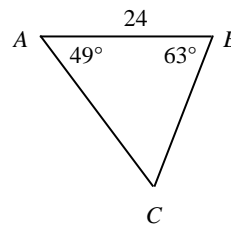
17. The vertices of quadrilateral $VWXY$ are $V(9, 3)$, $W(6, 2)$, $X(7, 6)$, and $Y(11, 8)$. Is $VWXY$ a parallelogram?



18. Draw the front, top, and side views of the solid below.



19. Find the length of \overline{AC} .



20. The equation of a circle is $(x + 7)^2 + (y - 8)^2 = 16$. What is the equation of the circle if it is translated 4 units to the right and 7 units down?

Geometry Cumulative Study Guide Test 19

Answer Section

MULTIPLE CHOICE RESPONSE

1. ANS: 34

PTS: 1 REF: Lesson 57: Finding Perimeter and Area with Coordinates
 NAT: NCTM G.2b TOP: Cumulative Test 19

2. ANS: 18

PTS: 1 REF: Lesson 73: Applying Trigonometry: Angles of Elevation and Depression
 NAT: NCTM G.1d TOP: Cumulative Test 19

3. ANS: 5

PTS: 1 REF: Lesson 86: Determining Chord Length
 NAT: NCTM G.1d TOP: Cumulative Test 19

PROBLEM

4. ANS:

$$A = 16\sqrt{3} \text{ square feet}$$

PTS: 1 REF: Lesson 66: Finding Perimeters and Areas of Regular Polygons
 NAT: NCTM M.2b TOP: Cumulative Test 19
 MSC: Geom_S07_00089

5. ANS:

$$(-4, 0); (5, 3)$$

PTS: 1 REF: Lesson 71: Translations
 TOP: Cumulative Test 19 MSC: Geom_S08_00074

6. ANS:

$$(x - 3)^2 + (y - 2)^2 = 25$$

PTS: 1 REF: Lesson 75: Writing the Equation of a Circle
 NAT: NCTM G.4d TOP: Cumulative Test 19

7. ANS:

$$V \approx 134.04 \text{ cubic inches; } SA \approx 150.8 \text{ square inches}$$

PTS: 1 REF: Lesson 80: Finding Surface Areas and Volumes of Spheres

NAT: NCTM M.2b TOP: Cumulative Test 19
 MSC: Geom_S08_00101

8. ANS:

The price of the product is \$54 and 42 will sell at this price.

PTS: 1 REF: Lesson 81: Graphing and Solving Linear Systems

NAT: NCTM A.2b TOP: Cumulative Test 19
 MSC: Geom_S06_00067

9. ANS:

$$\theta \approx 60.9^\circ$$

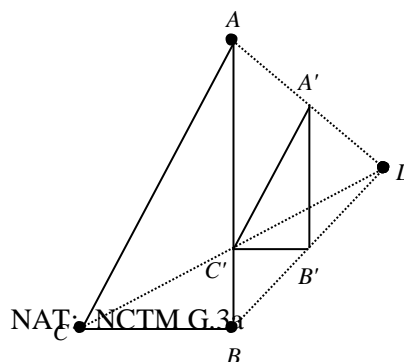
PTS: 1 REF: Lesson 82: More Applications of Trigonometry
 NAT: NCTM G.1d TOP: Cumulative Test 19
 MSC: Geom_S08_00062

10. ANS:

$$\vec{p} + \vec{q} + \vec{r} = \langle 20, -2 \rangle$$

PTS: 1 REF: Lesson 83: Vector Addition
 NAT: NCTM NO.3a TOP: Cumulative Test 19
 MSC: Geom_S09_00061

11. ANS:



NAT: NCTM G.3a

PTS: 1 REF: Lesson 84: Dilations
 TOP: Cumulative Test 19 MSC: Geom_S09_00065

12. ANS:

The cross-section is a triangle.

PTS: 1 REF: Lesson 85: Cross Sections of Solids

NAT: NCTM G.1a TOP: Cumulative Test 19

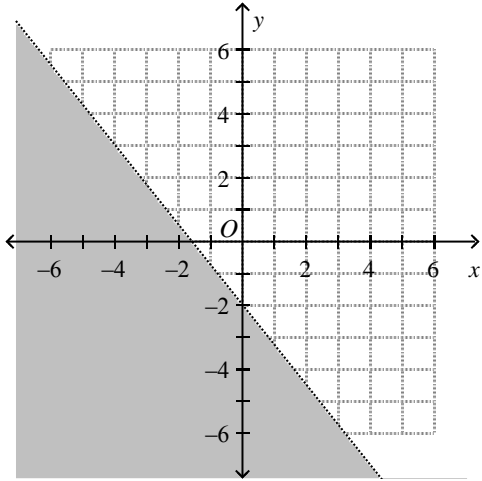
13. ANS:

The ratio of the smaller triangle's area to the larger triangle's area is 1 : 49; the area of the smaller triangle is 24 cm^2 .

PTS: 1 REF: Lesson 87: Area Ratios of Similar Figures

NAT: NCTM G.1b TOP: Cumulative Test 19

14. ANS:



PTS: 1 REF: Lesson 88: Graphing and Solving Linear Inequalities

NAT: NCTM A.2b TOP: Cumulative Test 19

15. ANS:

$$\vec{V}_x = \langle 3.35, 0 \rangle, \vec{V}_y = \langle 0, 2.18 \rangle$$

PTS: 1 REF: Lesson 89: Vector Decomposition NAT: NCTM NO.3a

TOP: Cumulative Test 19 MSC: Geom_S09_00079

16. ANS:

$$\sin \theta \approx 0.82$$

PTS: 1 REF: Lesson 91: Introduction to Trigonometric Identities

NAT: NCTM G.1d TOP: Cumulative Test 19

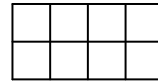
17. ANS:

No, VWXY is not a parallelogram.

PTS: 1 REF: Lesson 92: Quadrilaterals on the Coordinate Plane

NAT: NCTM G.2a TOP: Cumulative Test 19

18. ANS:



MSC: Geom_S09_00072



PTS: 1 REF: Lesson 93: Representing Solids: Orthographic Views

NAT: NCTM G.4a TOP: Cumulative Test 19

19. ANS:

$$AC \approx 23.06$$

PTS: 1 REF: Lesson 94: Law of Sines

TOP: Cumulative Test 19 MSC: Geom_S10_00056

20. ANS:

$$(x + 3)^2 + (y - 1)^2 = 16$$

PTS: 1 REF: Lesson 95: Equations of Circles: Translating and Dilating

NAT: NCTM G.3a TOP: Cumulative Test 19

MSC: Geom_S09_00074

MSC: Geom_S10_00049

MSC: Geom_S10_00051