

Geometry Cumulative Study Guide

Test 17

Name: _____

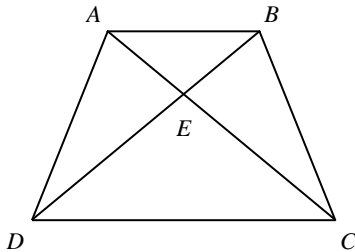
Date: _____

Period: _____

Numeric Response

1. Use a calculator to evaluate the expression $\tan 43^\circ$. Round the answer to the nearest hundredth.

2. In isosceles trapezoid $ABCD$ shown below, find the length, in feet, of \overline{AE} if $BD = 13.3$ feet and $DE = 7.3$ feet.

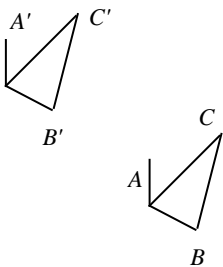


3. What is the lateral area, in square feet, of a regular hexagonal pyramid with a side length of 2 feet and a slant length of 36 feet?

Problem

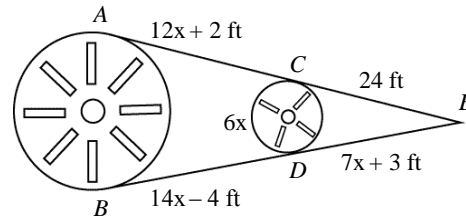
4. Find the area of an equilateral triangle with a side length of 48 meters.

5. Identify the type of transformation illustrated below.



6. A car in an animated cartoon will move from the point $(-6, -5)$ through the translations $a = \langle 6, 10 \rangle$ and $b = \langle -1, 9 \rangle$. What are the positions of the car after each translation?

7. A machine has a system of two pulleys and a belt as shown below. Find the length of the belt between A and C, B and D, and D and E.



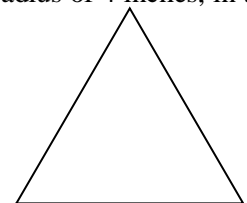
8. A helicopter is hovering in the air 120 feet off the ground. Louis sees the helicopter at an angle of elevation of 58° . Theresa sees the helicopter at an angle of elevation of 26° . Who is farther away from the helicopter? Explain.

9. Rectangle $ABCD$ has vertices at $A(-4, 1)$, $B(0, 1)$, $C(0, 4)$, and $D(-4, 4)$. Reflect $ABCD$ across the line $y = x$. Identify the coordinates of the vertices of the reflection image.

10. Write an equation to relate all the x - and y -coordinates of points that lie on $\odot C$ with a radius of $\sqrt{19}$, which is centered at the origin.

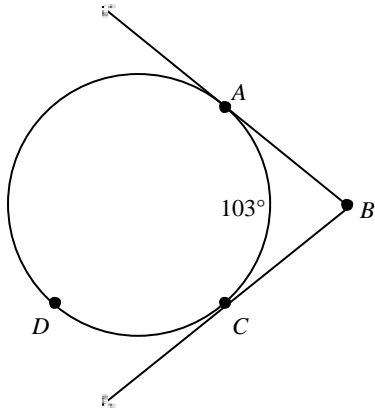
11. Tell whether the figure below has rotational symmetry. If so, give the angle of rotational symmetry and the order.

12. Calculate the surface area of a cone with a slant height of 8 inches and a base radius of 4 inches, in terms of π .



13. Rotate the point $(2, 5)$ 90° counterclockwise around the center of rotation $(2, 9)$.

14. Find $m\angle B$ in the diagram below.

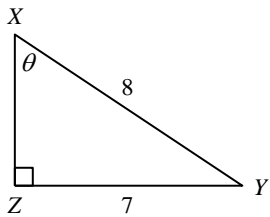


15. Find the volume of a sphere with a radius of 16 feet.

16. Solve the system of equations below algebraically.

$$y = -\frac{2}{3}x + 2 \qquad y = \frac{4}{3}x - 4$$

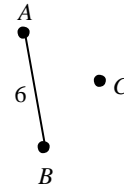
17. In the diagram below, find θ to the nearest degree.



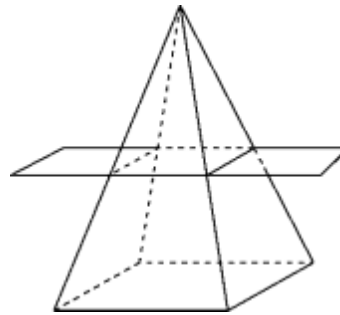
18. Use the parallelogram method to add the two vectors below.

$$\vec{a} = \langle 3, -4 \rangle, \quad \vec{b} = \langle 2, 2 \rangle$$

19. In the diagram below, apply a dilation to \overline{AB} using a scale factor of 2 and center C .



20. In the diagram below, if the plane is perpendicular to the pyramid's altitude, what figure is the cross section?



Geometry Cumulative Study Guide

Test 17

Name: _____

Date: _____

Period: _____

Geometry Cumulative Study Guide Test 17 Answer Section

NUMERIC RESPONSE

1. ANS: 0.93

PTS: 1 REF: Lesson 68: Introduction to Trigonometric Ratios
NAT: NCTM G.1d TOP: Cumulative Test 17 MSC: Geom_S07_00057

2. ANS: 6

PTS: 1 REF: Lesson 69: Properties of Trapezoids and Kites
NAT: NCTM G.1a TOP: Cumulative Test 17 MSC: Geom_S07_00060

3. ANS: 216

PTS: 1 REF: Lesson 70: Finding Surface Areas and Volumes of Pyramids
NAT: NCTM M.2b TOP: Cumulative Test 17
MSC: Geom_S07_00065

PROBLEM

4. ANS:

$576\sqrt{3}$ square meters

PTS: 1 REF: Lesson 66: Finding Perimeters and Areas of Regular Polygons
NAT: NCTM M.2b TOP: Cumulative Test 17
MSC: Geom_S07_00088

5. ANS:

The figure is translated up and left.

PTS: 1 REF: Lesson 67: Introduction to Transformations
NAT: NCTM G.3b TOP: Cumulative Test 17 MSC: Geom_S07_00094

6. ANS:

(0, 5); (-1, 14)

PTS: 1 REF: Lesson 71: Translations NAT: NCTM G.3a
TOP: Cumulative Test 17 MSC: Geom_S08_00073

7. ANS:

$x = 3$; $AC = 38$ feet; $BD = 38$ feet; $DE = 24$ feet

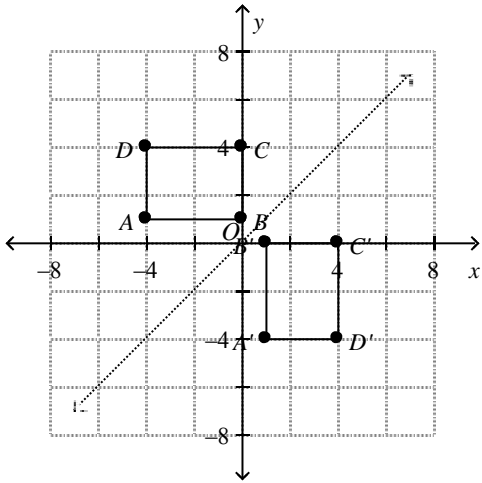
PTS: 1 REF: Lesson 72: Tangents and Circles, Part 2
NAT: NCTM G.1a TOP: Cumulative Test 17 MSC: Geom_S08_00076

8. ANS:

Theresa; Theresa is about 246 feet away from the helicopter while Louis is about 75 feet away from the helicopter.

PTS: 1 REF: Lesson 73: Applying Trigonometry: Angles of Elevation and Depression
NAT: NCTM G.1d TOP: Cumulative Test 17 MSC: Geom_S08_00078

9. ANS:



$A'(1, -4)$, $B'(1, 0)$, $C'(4, 0)$, and $D'(4, -4)$

PTS: 1 REF: Lesson 74: Reflections NAT: NCTM G.3a
TOP: Cumulative Test 17 MSC: Geom_S08_00081

10. ANS:
 $x^2 + y^2 = 19$

PTS: 1 REF: Lesson 75: Writing the Equation of a Circle
NAT: NCTM G.4d TOP: Cumulative Test 17 MSC: Geom_S08_00084

11. ANS:
Yes; 120° ; order 3

PTS: 1 REF: Lesson 76: Symmetry NAT: NCTM G.1a
TOP: Cumulative Test 17 MSC: Geom_S08_00088

12. ANS:
 48π square inches

PTS: 1 REF: Lesson 77: Finding Surface Areas and Volumes of Cones
NAT: NCTM M.2b TOP: Cumulative Test 17

MSC: Geom_S08_00090
13. ANS:
(6, 9)

PTS: 1 REF: Lesson 78: Rotations NAT: NCTM G.3a
TOP: Cumulative Test 17 MSC: Geom_S08_00093

14. ANS:
 $m\angle B = 77^\circ$

PTS: 1 REF: Lesson 79: Angles Exterior to Circles
NAT: NCTM G.1d TOP: Cumulative Test 17 MSC: Geom_S08_00097

15. ANS:
 $V \approx 17,157.28$ cubic feet

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

NAT: NCTM M.2b

TOP: Cumulative Test 17

MSC: Geom_S08_00100

16. ANS:

(3, 0)

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

NAT: NCTM A.2b TOP: Cumulative Test 17 MSC: Geom_S09_00049

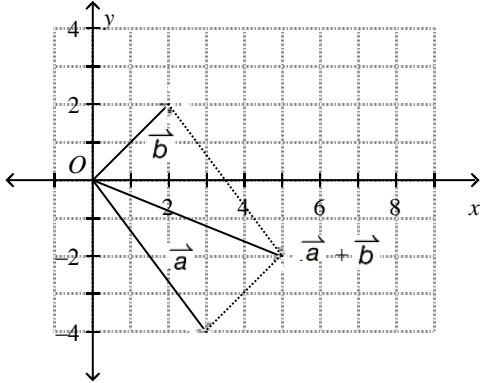
17. ANS:

$\theta \approx 61^\circ$

PTS: 1 REF: Lesson 82: More Applications of Trigonometry

NAT: NCTM G.1d TOP: Cumulative Test 17 MSC: Geom_S09_00054

18. ANS:

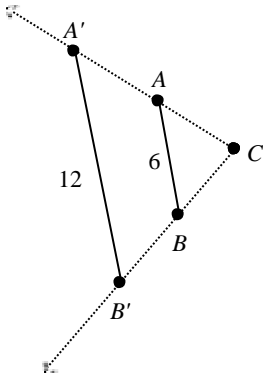


$\vec{a} + \vec{b} = \langle 5, -2 \rangle$

PTS: 1 REF: Lesson 83: Vector Addition NAT: NCTM G.4d

TOP: Cumulative Test 17 MSC: Geom_S09_00059

19. ANS:



Since AB was 6 and it was enlarged by a factor of 2, $A'B'$ is 12.

PTS: 1 REF: Lesson 84: Dilations NAT: NCTM G.3a

TOP: Cumulative Test 17 MSC: Geom_S09_00063

20. ANS:

The cross section is a square.

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

NAT: NCTM G.1a TOP: Cumulative Test 17
MSC: Geom_S09_00067