Geometry Cumulative Study Guide

Test 14

Name: _____

Date: _____

Period: _____
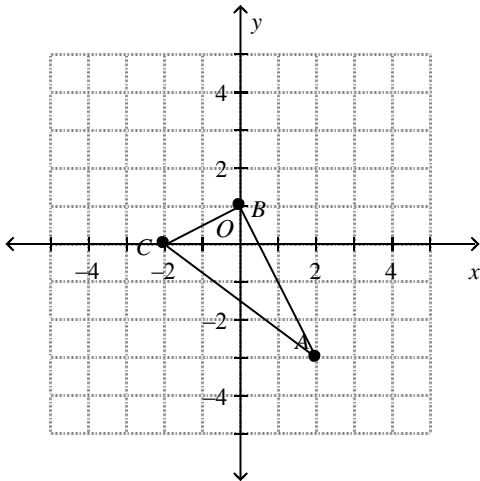
Numeric Response

1. Find the distance, in units, from point $A(3, 7)$ to the line $x = 9$.
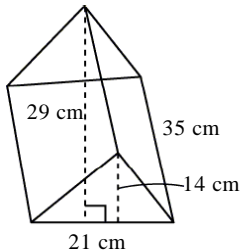
2. Find the geometric mean of 4 and 13 to the nearest tenth.

3. A square rug has a diagonal length of 21 feet. What is the square footage of the rug?
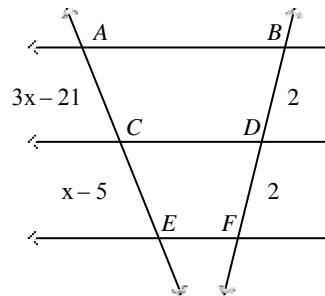
4. In the diagram below, find the area, in square units, of right triangle PQR with right angle $\angle PRQ$.
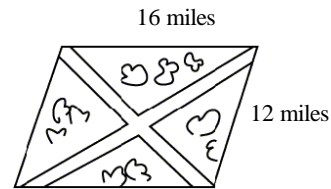

5. Find the volume, in cubic centimeters, of the oblique prism shown below.

6. In the diagram below, $\overleftrightarrow{AB}$, $\overleftrightarrow{CD}$, and $\overleftrightarrow{EF}$ are parallel. Find the length of $\overline{AC}$.
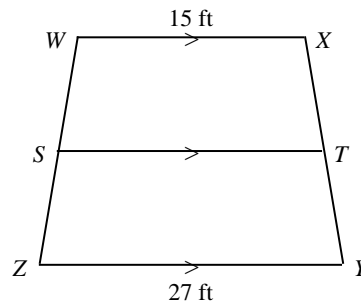

7. A road surrounds the perimeter of the park shown below. The park has two bike paths that bisect each other to form an "X." What is the length of the road in miles?

8. Find the perimeter, in feet, of a regular pentagon if one side is 13.5 feet long.

9. The midsegment of trapezoid $WXYZ$ shown below is $\overline{ST}$. Find the length, in feet, of $\overline{ST}$.

10. What is the lateral area, in square meters, of a regular hexagonal pyramid with a side length of 4 meters and a slant length of 10 meters?

Problem

11. Write the equation of a line that is parallel to $y = -4x + 5$ and passes through point $(-6, 21)$.

12. If the vertex angle of an isosceles triangle measures $50°$, what are the measures of each of its base angles?

13. In the figure below, $\overline{AB}$ and $\overline{AD}$ are tangent to $\odot C$. Determine the perimeter of quadrilateral $ABCD$. What type of quadrilateral is $ABCD$?
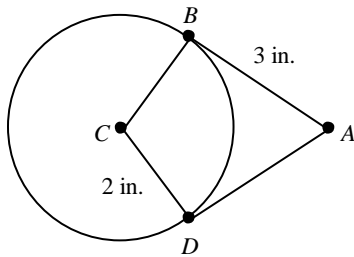
14. In $\triangle ABC$, $\angle A$ is a right angle, $m\angle B = 60°$, and $AC = 7$. How are AB and BC related? Determine AB and BC. Then give exact values for $\sin 60°$, $\cos 60°$, and $\tan 60°$.

15. Find the total surface area of a right cylinder in terms of π if the height is 30 centimeters and the radius is 29 centimeters.

16. Find $|\vec{v}|$ in the diagram below.
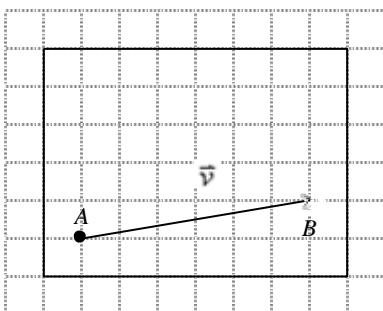
17. Find a in the diagram below.
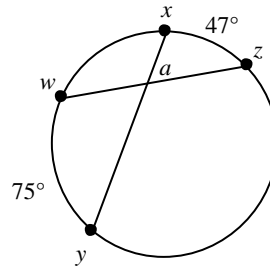
18. Is parallelogram $ABCD$ shown below a rectangle?

19. Identify the type of transformation illustrated below.

20. Give the sine, cosine, and tangent of $\angle E$ in the triangle below.

Geometry Cumulative Study Guide Test 14
Answer Section

NUMERIC RESPONSE

      1.   ANS: 6

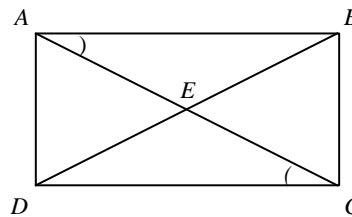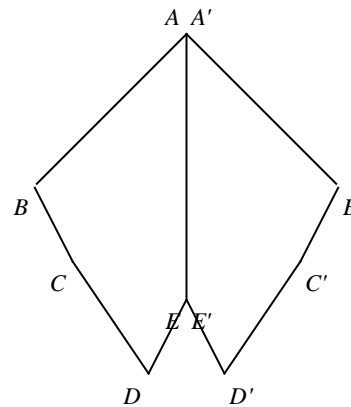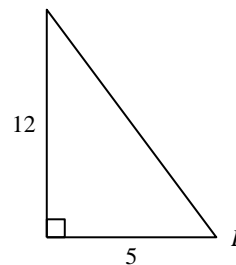PTS: 1   REF: Lesson 42: Finding Distance from a Point to a Line
NAT: NCTM G.1d TOP: Cumulative Test 14   MSC: Geom_S05_00060
      2.   ANS: 7.2

PTS: 1   REF: Lesson 50: Geometric Mean   NAT: NCTM G.4d
TOP: Cumulative Test 14   MSC: Geom_S05_00069
      3.   ANS: 220.5

PTS: 1   REF: Lesson 53: 45°-45°-90° Right Triangles
NAT: NCTM M.2b   TOP: Cumulative Test 14
MSC: Geom_S06_00061
      4.   ANS: 5

PTS: 1   REF: Lesson 57: Finding Perimeter and Area with Coordinates
NAT: NCTM G.2b TOP: Cumulative Test 14   MSC: Geom_S06_00065
      5.   ANS: 4263

PTS: 1   REF: Lesson 59: Finding Surface Areas and Volumes of Prisms
NAT: NCTM M.2b   TOP: Cumulative Test 14
MSC: Geom_S06_00070
      6.   ANS: 3

PTS: 1   REF: Lesson 60: Proportionality Theorems
NAT: NCTM G.1b TOP: Cumulative Test 14   MSC: Geom_S06_00072
      7.   ANS: 56

PTS: 1   REF: Lesson 61: Determining If a Quadrilateral is a Parallelogram
NAT: NCTM G.1a TOP: Cumulative Test 14   MSC: Geom_S07_00049
      8.   ANS: 67.5

PTS: 1   REF: Lesson 66: Finding Perimeters and Areas of Regular Polygons
NAT: NCTM G.1a TOP: Cumulative Test 14   MSC: Geom_S07_00052
      9.   ANS: 21

PTS: 1   REF: Lesson 69: Properties of Trapezoids and Kites
NAT: NCTM G.1a TOP: Cumulative Test 14   MSC: Geom_S07_00059
     10.   ANS: 120

PTS: 1   REF: Lesson 70: Finding Surface Areas and Volumes of Pyramids
NAT: NCTM M.2b   TOP: Cumulative Test 14
MSC: Geom_S07_00062

PROBLEM

    11.   ANS:

$y = -4x - 3$

PTS: 1   REF: Lesson 37: Writing Equations of Parallel and Perpendicular Lines
NAT: NCTM A.4   TOP: Cumulative Test 14   MSC: Geom_S04_00089

    12.   ANS:

$65°$

PTS: 1   REF: Lesson 51: Properties of Isosceles and Equilateral Triangles
NAT: NCTM G.1a   TOP: Cumulative Test 14   MSC: Geom_S06_00076

    13.   ANS:

10 inches; kite

PTS: 1   REF: Lesson 58: Tangents and Circles, Part 1
NAT: NCTM G.1a   TOP: Cumulative Test 14   MSC: Geom_S06_00091

    14.   ANS:

$BC = 2AB; AB = \dfrac{7\sqrt{3}}{3}; BC = \dfrac{14\sqrt{3}}{3}; \sin 60° = \dfrac{\sqrt{3}}{2}, \cos 60° = \dfrac{1}{2}, \tan 60° = \sqrt{3}$

PTS: 1   REF: Investigation 7: Trigonometric Ratios
NAT: NCTM G.1d   TOP: Cumulative Test 14   MSC: Geom_S07_00069

    15.   ANS:

3422π square centimeters

PTS: 1   REF: Lesson 62: Finding Surface Areas and Volumes of Cylinders
NAT: NCTM M.2b   TOP: Cumulative Test 14
MSC: Geom_S07_00072

    16.   ANS:

$|\vec{v}| = \sqrt{37}$

PTS: 1   REF: Lesson 63: Introduction to Vectors   NAT: NCTM NO.3a
TOP: Cumulative Test 14   MSC: Geom_S07_00075

    17.   ANS:

$61°$

PTS: 1   REF: Lesson 64: Angles Interior to Circles
NAT: NCTM G.1d   TOP: Cumulative Test 14   MSC: Geom_S07_00079

    18.   ANS:

Yes, parallelogram *ABCD* is a rectangle because the diagonals can be shown to have equal length.

PTS: 1   REF: Lesson 65: Distinguishing Types of Parallelograms
NAT: NCTM G.1a   TOP: Cumulative Test 14   MSC: Geom_S07_00083

    19.   ANS:

The figure *ABCDE* is reflected across $\overleftrightarrow{AE}$.

PTS: 1 REF: Lesson 67: Introduction to Transformations
NAT: NCTM G.3b TOP: Cumulative Test 14 MSC: Geom_S07_00091

20. ANS:

$\sin E = \dfrac{12}{13}$; $\cos E = \dfrac{5}{13}$; $\tan E = \dfrac{12}{5}$

PTS: 1 REF: Lesson 68: Introduction to Trigonometric Ratios
NAT: NCTM G.1d TOP: Cumulative Test 14 MSC: Geom_S07_00096
PTS: 1 REF: Lesson 35: Finding Arc Lengths and Areas of Sectors
NAT: NCTM M.2b TOP: Cumulative Test 13
MSC: Geom_S04_00059