

Geometry Cumulative Study Guide

Test 12

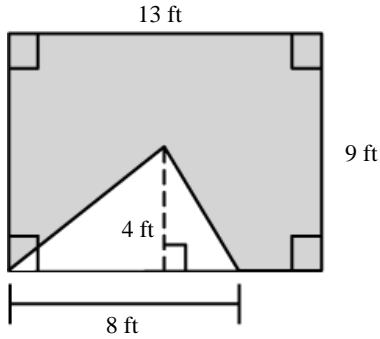
Name: _____

Date: _____

Period: _____

Numeric Response

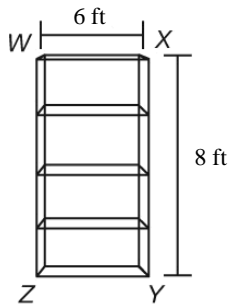
1. Find the area of the shaded region in the figure below in square feet.



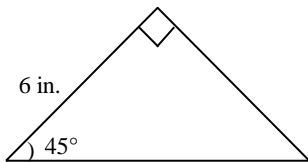
2. Find the distance from point $P(-6, -1)$ to the line $x = 13$.

3. Find the geometric mean of 17 and 5 to the nearest tenth.

4. The rectangular bookcase shown below has braces placed diagonally across the back. Determine the length, in feet, of the brace that will be used for diagonal \overline{WY} .

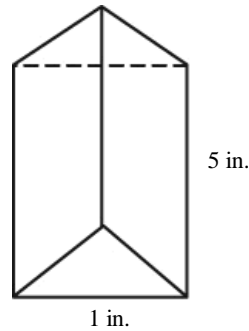


5. Find the perimeter, in inches, of the triangle to the nearest hundredth foot.



6. Find the perimeter of rectangle $WXYZ$ with coordinates $W(3, -4)$, $X(3, -6)$, $Y(-1, -6)$, and $Z(-1, -4)$.

7. Find the lateral area, in square inches, of the regular triangular prism shown below.

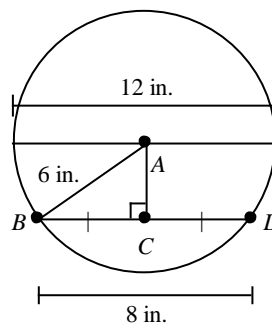


Problem

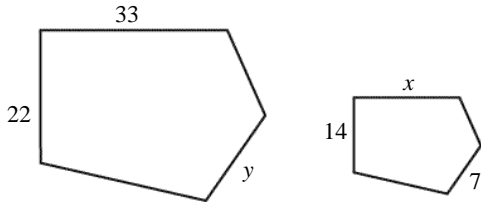
8. Decide whether each set of side lengths could form a valid triangle: $(19, 13, 32)$, $(7, 13, 10)$, and $(3, 16, 12)$.

9. Solve the proportion $\frac{6}{4} = \frac{x}{18}$.

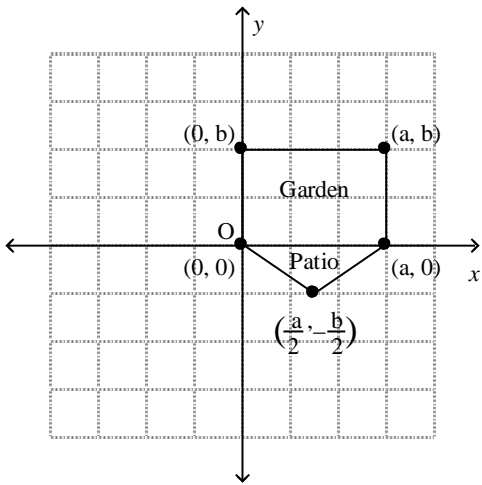
10. The circle shown has a diameter of 12 inches. Chord \overline{BD} is 8 inches long. How far is \overline{BD} from the center of the circle?



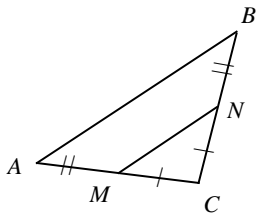
11. The pentagons in the diagram below are similar. Find x and y .



12. Cassie is building a patio next to her rectangular garden. She draws a diagram of what she plans to build and overlays a coordinate grid on it, as shown below. Prove that the patio has an area that is one-fourth the size of the garden's area.



13. Prove that $\triangle ABC \sim \triangle MNC$.

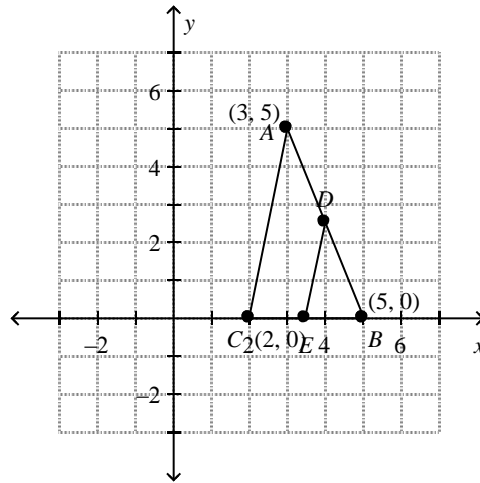


14. A spinner is divided into 6 equal sectors. Sector 1 is colored red, sectors 2–4 are colored blue, and sectors 5–6 are colored yellow. What are the measures of the red, blue, and yellow central angles?

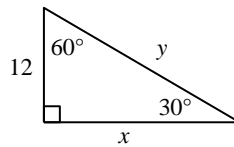
15. Triangle ABC is isosceles, and its vertex angle is at B . If $m\angle A = 55^\circ$, determine $m\angle B$ and $m\angle C$.

16. Draw a rectangular prism in two-point perspective in which the vanishing points are above the prism.

17. Triangle ABC has vertices $A(3, 5)$, $B(5, 0)$, and $C(2, 0)$ as shown below. \overline{DE} is a midsegment of $\triangle ABC$. Find the coordinates of D and E .

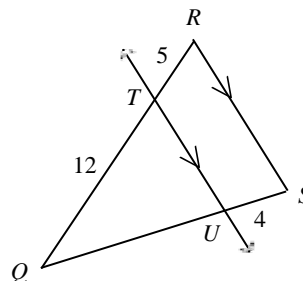


18. Find the values of x and y in the diagram below. Give your answer in simplified radical form.



19. Line p is tangent to $\odot C$ at A , and line q passes through C . Lines p and q intersect at B . If $m\angle CBA = 14^\circ$, determine $m\angle ACB$.

20. Find QU .



Geometry Cumulative Study Guide

Test 12

Name: _____

Date: _____

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Geometry Cumulative Study Guide Test 12 Answer Section

NUMERIC RESPONSE

1. ANS: 101

PTS: 1 REF: Lesson 40: Finding Perimeters and Areas of Composite Figures
NAT: NCTM M.2b TOP: Cumulative Test 12
MSC: Geom_S04_00065

2. ANS: 19

PTS: 1 REF: Lesson 42: Finding Distance from a Point to a Line
NAT: NCTM G.1d TOP: Cumulative Test 12 MSC: Geom_S05_00059

3. ANS: 9.2

PTS: 1 REF: Lesson 50: Geometric Mean NAT: NCTM G.4d
TOP: Cumulative Test 12 MSC: Geom_S05_00068

4. ANS: 10

PTS: 1 REF: Lesson 52: Properties of Rectangles, Rhombuses, and Squares
NAT: NCTM G.1d TOP: Cumulative Test 12 MSC: Geom_S06_00057

5. ANS: 20.49

PTS: 1 REF: Lesson 53: 45°-45°-90° Right Triangles
NAT: NCTM G.1a TOP: Cumulative Test 12 MSC: Geom_S06_00060

6. ANS: 12

PTS: 1 REF: Lesson 57: Finding Perimeter and Area with Coordinates
NAT: NCTM G.2b TOP: Cumulative Test 12 MSC: Geom_S06_00064

7. ANS: 15

PTS: 1 REF: Lesson 59: Finding Surface Areas and Volumes of Prisms
NAT: NCTM M.2b TOP: Cumulative Test 12
MSC: Geom_S06_00068

PROBLEM

8. ANS:
no, yes, and no

PTS: 1 REF: Lesson 39: Inequalities in a Triangle
NAT: NCTM G.1a TOP: Cumulative Test 12 MSC: Geom_S04_00097

9. ANS:
 $x = 27$

PTS: 1 REF: Lesson 41: Ratios, Proportions, and Similarity

NAT: NCTM A.2b TOP: Cumulative Test 12 MSC: Geom_S05_00074

10. ANS:
 ≈ 4.47 inches

PTS: 1 REF: Lesson 43: Chords, Secants, and Tangents
 NAT: NCTM G.1d TOP: Cumulative Test 12 MSC: Geom_S05_00079

11. ANS:
 $x = 21; y = 11$

PTS: 1 REF: Lesson 44: Applying Similarity NAT: NCTM G.1b
 TOP: Cumulative Test 12 MSC: Geom_S05_00082

12. ANS:
 The area of a rectangle is bh . The garden in the diagram has base length a and height b , so its total area is ab . The patio is a triangle. The area of a triangle is $\frac{1}{2}bh$. The height of the patio is $\frac{b}{2}$ and the length of its base is a . Substitute the values into the formula for area of a triangle. $A = \frac{1}{2}bh = \frac{1}{2}(a)\left(\frac{b}{2}\right) = \frac{ab}{4}$ Therefore, the area of the patio is one-fourth the area of the garden.

PTS: 1 REF: Lesson 45: Introduction to Coordinate Proofs
 NAT: NCTM G.2a TOP: Cumulative Test 12 MSC: Geom_S05_00087

13. ANS:
 Since the two triangles share an angle, we know by the Reflexive Property that $\angle ACB \cong \angle MCN$. It is given in the diagram that $\overline{CM} \cong \overline{CN}$ and $\overline{MA} \cong \overline{NB}$. The ratio of CM to CA can be given by $\frac{CM}{CM+MA}$. By substituting the congruent segments, it can be rewritten as $\frac{CN}{CN+NB}$, which is also the ratio of CN to CB . So the triangles have two proportional sides and one congruent angle. By the SAS Similarity Theorem, they are similar triangles.

PTS: 1 REF: Lesson 46: Triangle Similarity: AA, SSS, SAS
 NAT: NCTM G.1b TOP: Cumulative Test 12 MSC: Geom_S05_00090

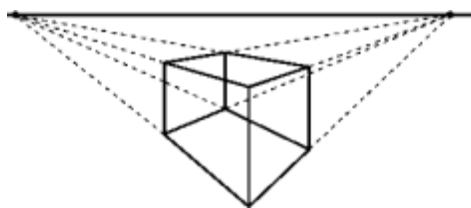
14. ANS:
 red: 60° ; blue: 180° ; yellow: 120°

PTS: 1 REF: Investigation 6: Geometric Probability
 NAT: NCTM G.4d TOP: Cumulative Test 12 MSC: Geom_S06_00074

15. ANS:
 $m\angle B = 70^\circ; m\angle C = 55^\circ$

PTS: 1 REF: Lesson 51: Properties of Isosceles and Equilateral Triangles
 NAT: NCTM G.1d TOP: Cumulative Test 12 MSC: Geom_S06_00075

16. ANS:
 Sample:



PTS: 1 REF: Lesson 54: Representing Solids NAT: NCTM G.4a
 TOP: Cumulative Test 12 MSC: Geom_S06_00079

17. ANS:
 $D(4, 2\frac{1}{2}); E(3\frac{1}{2}, 0)$

PTS: 1 REF: Lesson 55: Triangle Midsegment Theorem
 NAT: NCTM G.2a TOP: Cumulative Test 12 MSC: Geom_S06_00081

18. ANS:
 $x = 12\sqrt{3}; y = 24$

PTS: 1 REF: Lesson 56: 30°-60°-90° Right Triangles
 NAT: NCTM G.1d TOP: Cumulative Test 12 MSC: Geom_S06_00084

19. ANS:
 $m\angle ACB = 76^\circ$

PTS: 1 REF: Lesson 58: Tangents and Circles, Part 1
 NAT: NCTM G.1d TOP: Cumulative Test 12 MSC: Geom_S06_00089

20. ANS:
 $9\frac{3}{5}$

PTS: 1 REF: Lesson 60: Proportionality Theorems
 NAT: NCTM G.1b TOP: Cumulative Test 12 MSC: Geom_S06_00092