Practice Problems for Geometry
from www.topmath.info

1 (T/F): A quadrilateral may contain exactly three right angles.

2 In triangle FGH, FG is 52 units long, and angle G is a right angle. A circle with radius 40 units is centered around point F. If the area of the part of the circle that does not overlap the triangle is 1280pi square units, what is the measure of angle H?

3 Equilateral pentagon CDEFG is inscribed in a circle of radius r. What is the length of arc CE?

4 (T/F): An equilateral pentagon has rotational symmetry.

5 A 1-inch cube weighs 21 ounces. How many ounces would a 5-inch cube of the same material weigh?

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6 A 1-centimeter diameter sphere has a mass of 1.7 grams. What would be the mass in grams of a 3-centimeter diameter sphere of the same material?

7 (T/F): Some, but not all, polygons are heptagons.

8 Points A, B, C, and D are in that order on a line. The distance from A to C is 40 inches, from A to D is 60 inches, and from B to D is 47 inches. How long is it from B to C?

9 (T/F): A line segment has exactly one endpoint.

10 In Figure 2, angle DAE measures x°, and angle EBC measures y°. What is the degree measure of angle DEC?

11 On a standard circular clock face, point A is on the 6, point B is the center of the clock, and point C is on the 9. What is the measure of angle BAC in degrees?

12 A triangle with one side that is 7 units in length has a total perimeter of 31 units. If the other two sides of the triangle are equal in length, how long is one of them?

13 The base of a triangle is 3 units, and the area of the triangle is 7.5 square units. How many units is the height of the triangle?

14 (T/F): An isosceles triangle can be an acute triangle.

15 (T/F): All parallelograms are rhombuses.

1 ANSWER: False

2 ANSWER: 18°. EXPLANATION: Draw a picture illustrating the situation. From the radius we know that the area of the whole circle is 1600pi square units. Therefore, the area of that part of the circle that overlaps the triangle must be 320pi square units, or 1/5 of the total area. Therefore, angle F must be 1/5 of 360 degrees, or 72°. Hence, angle H must be 18°.

3 ANSWER: 4(pi)r/5. EXPLANATION: The total circumference is 2(pi)r. Because the inscribed shape is an equilateral pentagon, arc CE is one fifth of that circumference.

4 ANSWER: True

5 ANSWER: 2625

6 ANSWER: 45.9

7 ANSWER: True

8 ANSWER: 27 inches. EXPLANATION: Since the distance from A to D is 60 inches, and the distance from A to C is 40 inches, then the distance from C to D must be 20 inches. Subtract this from the distance from B to D (47 inches) to get the distance from B to C.

9 ANSWER: False

10 ANSWER: x+y. EXPLANATION: Because AD and BC are parallel, angle ECB must have the same measure as angle DAE, or x°. Therefore, angle BEC must have the measure 180 - (x+y). Since BEC and AEB are supplementary angles, AEB must measure x+y degrees. Finally, note that AEB must equal DEC.

11 ANSWER: 45

12 ANSWER: 12 units. EXPLANATION: The perimeter is the sum of the lengths of the three sides. Since the total is 31 units, and one side is 7 units, the other two sides must add up to 24 units. Divide this number by two to obtain the answer.

13 ANSWER: 5. EXPLANATION: The area of a triangle is half the base times the height. Since the area is 7.5 square units, the base times the height must be 15 square units. Dividing this number by the base (3 units) gives the height.

14 ANSWER: True. EXPLANATION: An isosceles triangle is an acute triangle if the two sides with the same measure meet at an acute angle (one measuring less than 90 degrees).

15 ANSWER: False