

Practice Problems for Geometry
from www.topmath.info

1 (T/F): A line has no endpoint.

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

3 (T/F): A triangle can have exactly two 60 degree angles.

4 An isosceles triangle has sides that are 6 and 16 units in length. What is the perimeter of the triangle?

5 A triangle with a base of 11 units has an area of 11 square units. What is the area of a second triangle that is similar to the first one, but has a base of 88 units?

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6 The two short sides of a right triangle are 12 inches and 14 inches long. To the nearest inch, how long is the hypotenuse?

7 A rectangle is 4 cm longer than it is wide. If its length is 14 cm, what is its area?

8 (T/F): All squares are quadrilaterals.

9 The radius of a circle is 26 inches. How many inches long is its diameter?

10 Points X, A, B, C, D, and Y are six distinct points located in that order along an arc. Point Z is the midpoint of line segment XY. If angles AZX, BZA, CZB, DZC, and YZD all measure x° , what is the measure of angle BZD?

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11 Claire draws a circle of diameter 4 cm inside a circle 16 cm in radius. What is the area between the two circles in square cm, if $\pi=3.14$?

12 How many lines of symmetry does an equilateral heptagon have?

13 A 1-centimeter cube has a mass of 9.6 grams. What would be the mass in grams of a 3-centimeter cube of the same material?

14 What is the name for a polygon with 3 sides?

15 (T/F): Some, but not all, triangles are polygons.

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1 ANSWER: True

2 ANSWER: $y-x$. EXPLANATION: Because AD and BC are parallel, angle ECB must have the same measure as angle DAE, or x° . Because angle DEC measures y° , CEB must measure $180-y$ degrees. Therefore, angle EBC must be 180 degrees minus the sum of angles CEB and BCE. Hence, the measure of angle EBC is $180 - [(180-y) + x]$, or $y-x$.

3 ANSWER: False

4 ANSWER: 38 units. EXPLANATION: The longer side must be the one that has an equal side, because two 6 unit sides would not be long enough to form a triangle with a 16 unit side. Therefore, the total perimeter must be the sum of two 16 unit sides and one 6 unit side.

5 ANSWER: 704 square units. EXPLANATION: The base of the second triangle is 8 times the base of the original triangle. Since the triangles are similar, the height of the second triangle must also be 8 times the height of the first triangle. Since calculating area involves multiplying by base and height, the area of the new triangle must be 8 times 8 (64) times as large as the first triangle.

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6 ANSWER: 18. EXPLANATION: By the Pythagorean Theorem, the length of the hypotenuse is the square root of the sum of the squares of the other two sides. The squares of the other two sides are 144 and 196 square inches. The sum of these two quantities is 340 square inches. The square root of this number is about 18 inches.

7 ANSWER: 140 square cm. EXPLANATION: We know that the length (14 cm) is 4 cm longer than the width, which must be 10 cm. Since the area of a rectangle is its length times its width, we multiply these two numbers together to get the answer.

8 ANSWER: True

9 ANSWER: 52

10 ANSWER: 72° . EXPLANATION: The sum of the five angles is the straight angle XY. Since a straight angle equals 180° , you simply divide 180° by 5 to find the value of x. Since angle BZD is made up of the adjacent angles BZC and CZD, the measure of BZD is $2x$.

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11 ANSWER: 791.28

12 ANSWER: 7

13 ANSWER: 259.2

14 ANSWER: triangle

15 ANSWER: False