

In this paper there are three parts of questions answer all the questions

Write explanation for each response that you have chosen in the space provide

1. A right-angled triangle with legs of lengths 5 cm and 12 cm, find the area. Investigate how the area changes when one leg is fixed, and the other varies?

a) 30 cm²

Explanation

b) 36 cm²

c) 40 cm²

d) 60 cm²

2. A rectangular garden has a length of 15 meters and a width of 8 meters. Calculate the perimeter of the garden. Investigate how the perimeter changes when the length or width is altered while maintaining the area constant.

a) 46 meters

Explanation

b) 48 meters

c) 56 meters

d) 60 meters

3. A rectangular prism has a base area of 25 square units and a height of 8 units. Calculate the volume. Investigate how changes in the base area or height affect the volume.

a) 200 cubic units

Explanation

b) 250 cubic units

c) 300 cubic units

d) 400 cubic units

4. Given a semi-circle with a diameter of 10 meters, calculate its area. Clearly show the steps involved in finding the area.

a) 78.5 m^2

Explanation

b) 157 m^2

c) 235.5 m^2

d) 314 m^2

5. Determine the area of a quarter circle with a radius of 6 cm. Explain how the formula for the area of a quarter circle is derived from the formula for a full circle.

a) 28.26 cm^2

Explanation

b) 56.52 cm^2

c) 113 cm^2

d) 37.68 cm^2

6. If the area of a circle is 154 square centimeters, calculate the radius. Use the formula for the area of a circle and show all the steps in your solution.

a) 7 cm

Explanation

b) 8 cm

c) 9 cm

d) 10 cm

7. Consider a circle with a radius of 5 cm and a semi-circle attached to it. Find the combined area of the circle and the semi-circle.

a) $50\pi \text{ cm}^2$

Explanation

b) $75\pi \text{ cm}^2$

c) $100\pi \text{ cm}^2$

d) $125\pi \text{ cm}^2$

Find the correct answers and write in the space provide;

1. In a right-angled triangle, if one leg is 8 cm and the hypotenuse is 10 cm, find the length of the other leg using Pythagoras' theorem. (Answer: _____ cm)
2. A ladder is leaning against a wall with the base 6 meters away from the wall. If the ladder is 8 meters long, find the height it reaches on the wall using Pythagoras' theorem. (Answer: _____ meters)
3. The sides of a right-angled triangle are in the ratio 3:4:5. If the shortest side is 6 cm, find the lengths of the other two sides. (Answer: Shortest side = 6 cm, Second side = _____ cm, Hypotenuse = _____ cm)

Read the question carefully and draw the net:

1. Consider a rectangular prism with dimensions 4 cm \times 3 cm \times 6 cm. Draw the net of this prism, labeling each face.

Answer:

2. A triangular prism has a base with sides of length 5 cm, 6 cm, and 7 cm. Draw the net of this prism, indicating the shape of each face.

Answer:

3. If you unfold a cube with side length 2 cm, what would be the resulting net? Draw the net and label each square face.

Answer:

4. Consider a rectangle with a fixed perimeter of 30 cm. Draw possible dimensions of the rectangle and find the area. Explore how different combinations of length and width affect the area.

Answer: