Maths with Melissa

Solving Shape Equations (Length/Width)

Example: A rectangle has a length of 10 cm and a width of 6 cm. Find its perimeter and area.

Solution:

Perimeter: The formula for the perimeter of a rectangle is: $P = 2 \times (\text{length} + \text{width})$

Substitute the given values: $P = 2 \times (10\text{ cm} + 6\text{ cm}) = 2 \times 16\text{ cm} = 32\text{ cm}$

Area: The formula for the area of a rectangle is: $A = \text{length} \times \text{width}$

Substitute the given values: $A = 10\text{ cm} \times 6\text{ cm} = 60\text{ cm}^2$

Answer: Perimeter = 32 cm, Area = 60 cm

Questions

1. The perimeter of a rectangle is 40 cm. If its length is 12 cm, what is its width?
2. A rectangle has a width of 7 m and an area of 56 m². What is its length?
3. The length of a rectangle is twice its width. If the perimeter is 36 cm, what are its length and width?
4. The area of a rectangle is 120 cm². If the length is 15 cm, find the width.
5. The width of a rectangle is 5 cm less than its length. If the perimeter is 38 cm, what are the dimensions of the rectangle?
6. A rectangular garden is 8 m wide and has a perimeter of 44 m. What is its length?
7. The length of a rectangle exceeds its width by 4 cm. If the area is 60 cm² and the width is x cm, form and solve an equation to find x.
8. The area of a rectangle is 84 cm². If its width is 7 cm, what is its length?
9. The length and width of a rectangle are in the ratio 3:2. If the perimeter is 50 cm, what are the length and width?
10. A rectangle has a length that is 3 times its width. If the area is 75 cm², find the dimensions of the rectangle.

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Answer Key

1. Width = 8 cm
2. Length = 8 m
3. Width = 6 cm, Length = 12 cm
4. Width = 8 cm
5. Length = 12 cm, Width = 7 cm
6. Length = 14 m
7. Width = 6 cm, Length = 10 cm
8. Length = 12 cm
9. Length = 15 cm, Width = 10 cm
10. Width = 5 cm, Length = 15 cm
11. Length = 10 cm
12. Width = 8 cm, Length = 13 cm