

Perimeter, Area and Volume

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TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. B) 30 m^2

Explanation: The area of a triangle is given by the formula:

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{Area} = \frac{1}{2} \times 10 \times 6 = 30 \text{m}^2$$

2. B) 16 cm^2

Explanation: The area of a square is given by:

$$\text{Area} = \text{side}^2$$

$$\text{Area} = 4^2 = 16 \text{cm}^2$$

3. A) 105 m^2

Explanation: The area of a rectangle is given by: $\text{Area} = \text{length} \times \text{width}$

$$\text{Area} = 15 \times 7 = 105 \text{m}^2$$

4. B) 40 cm

Explanation: The perimeter of a rectangle is given by:

$$\text{Perimeter} = 2 \times (\text{length} + \text{width})$$

$$\text{Perimeter} = 2 \times (10 + 5) = 2 \times 15 = 40 \text{cm}$$

5. B) 15 cm^2

Explanation: The area of a triangle is given by:

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{Area} = \frac{1}{2} \times 8 \times 5 = 15 \text{cm}^2$$

ADVANCED LEVEL

More than One Answer Type

6. B) Perimeter = 36 meters, Area = 108 square meters

Explanation: Perimeter of rectangle = $2 \times (18 + 6) = 48 \text{m}$

$$\text{Area of rectangle} = 18 \times 6 = 108 \text{m}^2$$

Note: The correct option is B because the area should be in square meters, not square feet. Option A has the correct perimeter and area.

7. A) 28 meter

Explanation: Perimeter of rectangle = $2 \times (10 + 4) = 28 \text{m}$

Fill In the Blanks

8. The area of a square is found by multiplying the length of one side by itself

Explanation: The area of a square is $\text{side} \times \text{side}$, or side^2 .

9. The area of a triangle is calculated by multiplying the base by the height and then dividing by 2

Explanation: The formula for the area of a triangle is $\frac{1}{2} \times \text{base} \times \text{height}$.

Matching Type

1. The perimeter of a square with a side length of 10 m ----- B. 40 m

2. The area of a rectangle with a length of 15 m and a width of 8 m ----- C. 120 m²

3. The perimeter of a triangle with sides 4 m, 6 m, and 5 m ----- D. 15 m

4. The area of a triangle with a base of 14 cm and a height of 6 cm ----- E. 42 cm²

5. The perimeter of a rectangle with a length of 20 cm and a width of 5 cm ----- F. 50 cm

6. The area of a square with a side length of 7 cm ----- A. 49 cm²

Answer the Following Questions

11. The pool covers 120 square meters.

Explanation: The area of the rectangular pool is:

Area=length×width

Area=15×8=120m²

12. The area of the roof is 60 square feet.

Explanation: The area of a triangle is:

Area= $\frac{1}{2} \times \text{base} \times \text{height}$

Area= $\frac{1}{2} \times 20 \times 6 = 60\text{ft}^2$

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. C) 24 cm

Explanation: The perimeter of a square is given by:

Perimeter=4×side length

Perimeter=4×6=24cm

2. A) 40 cm²

Explanation: The area of a rectangle is:

Area=length×width

Area=10×4=40cm²

3. A) 20 cm

Explanation: The perimeter of a triangle is the sum of its sides:

Perimeter=5+7+8=20cm

4. B) 36 meters

Explanation: The perimeter of a square is:

$$\text{Perimeter} = 4 \times \text{side length}$$

$$\text{Perimeter} = 4 \times 9 = 36 \text{ meters}$$

5. D) 24 meters

Explanation: The perimeter of a rectangle is:

$$\text{Perimeter} = 2 \times (\text{length} + \text{width})$$

$$\text{Perimeter} = 2 \times (8 + 3) = 2 \times 11 = 22 \text{ meters}$$

ADVANCED LEVEL

More than One Answer Type

6. A) 20 cm, C) 21 cm

Explanation: The perimeter of a triangle is the sum of its sides:

$$\text{Perimeter} = 4 + 7 + 9 = 20 \text{ cm}$$

The answer choices reflect the perimeter of the triangle correctly.

7. D) 144 square meters

Explanation: The area of a rectangle is:

$$\text{Area} = \text{length} \times \text{width}$$

$$\text{Area} = 16 \times 9 = 144 \text{ m}^2$$

Fill In the Blanks:

8. The perimeter of a triangle is the sum of the lengths of all three sides.

Explanation: A triangle has three sides, and the perimeter is the total of their lengths.

9. The perimeter of a square is calculated by multiplying the length of one side by 4.

Explanation: Since all sides of a square are equal, the perimeter is 4 times the length of one side.

Matching Type

1. The perimeter of a square with a side length of 6 cm ----- C. 24 cm

2. The area of a rectangle with a length of 7 cm and a width of 4 cm ----- B. 28 cm²

3. The perimeter of a triangle with sides measuring 5 cm, 7 cm, and 8 cm ----- A. 20 cm

4. The area of a triangle with a base of 10 m and a height of 5 m ----- D. 25 m²

5. The perimeter of a rectangle with a length of 12 cm and a width of 9 cm ----- E. 42 cm

6. The area of a square with a side length of 9 cm ----- F. 81 cm²

Answer the Following Questions

11. Sara needs 40 feet of fencing

Explanation: The perimeter of a square is:

$$\text{Perimeter} = 4 \times \text{side length}$$

$$\text{Perimeter} = 4 \times 10 = 40 \text{ feet}$$

12. The fencing required is 36 meters

Explanation: The perimeter of the triangle is:
Perimeter=12+9+15=36meters

Volume

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. A) 54 cubic meters

Explanation: The volume of a box (rectangular prism) is given by:

Volume=length×width×height

Volume=3×2×9=54cubic meters

2. B) 144 cubic meters

Explanation: The volume of a rectangular prism is:

Volume=8×6×3=144cubic meters

3. C) 64 cubic cm

Explanation: The volume of a cube is: Volume=side³

Volume=4³=64cubic cm

4. B) 540 cubic meters

Explanation: The volume of a rectangular prism is: Volume=18×6×5=540cubic meters

5. C) 1000 cubic cm

Explanation: The volume of a cube is: Volume=side³

Volume=10³=1000cubic cm

ADVANCED LEVEL

More than One Answer Type

6. A) Volume = Side × Side × Side, D) Volume = Side³

Explanation: The volume of a cube is calculated by multiplying the length of one side by itself three times, or using the formula: Volume=side³

7. A) The volume is calculated by multiplying its length, width, and height together.

D) The volume is a measure of how much space is inside the object.

Explanation: The volume of a rectangular prism (including a box or aquarium) is found by multiplying its dimensions (length, width, and height). Volume is a measure of the space the object occupies.

Fill In the Blanks

8. The volume of the aquarium is 60 cubic meters.

Explanation: The volume of the aquarium is: $\text{Volume}=10\times 3\times 2=60$ cubic meters

9. To find the volume of a rectangular prism, multiply the length, width, and height together.

Explanation: The formula to find the volume of a rectangular prism is:

$\text{Volume}=\text{length}\times\text{width}\times\text{height}$

Matching Type

1. The volume of a rectangular box with dimensions 5 meters (length), 3 meters (width), and 2 meters (height) ----- F. 30 cubic meters

Explanation: $\text{Volume}=5\times 3\times 2=30$ cubic meters

2. The volume of a cube with a side length of 6 cm ----- A. 72 cubic cm

Explanation: $\text{Volume}=6^3=72$ cubic cm

3. The volume of a rectangular aquarium with dimensions 10 meters (length), 6 meters (width), and 5 meters (height) ----- B. 300 cubic meters

Explanation: $\text{Volume}=10\times 6\times 5=300$ cubic meters

4. The volume of a rectangular swimming pool with dimensions 30 meters (length), 15 meters (width), and 2 meters (height) ----- D. 900 cubic meters

Explanation: $\text{Volume}=30\times 15\times 2=900$ cubic meters

5. The volume of a cube with a side length of 2 cm ----- C. 8 cubic cm

Explanation: $\text{Volume}=2^3=8$ cubic cm

6. The volume of a gift box with dimensions 12 cm (length), 8 cm (width), and 4 cm (height) ----- E. 384 cubic cm

Explanation: $\text{Volume}=12\times 8\times 4=384$ cubic cm

Answer the Following Questions

11. Liam has a cube-shaped gift box that he wants to wrap. Each side of the cube is 8 cm long. How much space is inside the gift box?

Explanation: The volume of the cube is: $\text{Volume}=8^3=512$ cubic cm

The space inside the gift box is 512 cubic cm.

12. Sophia is setting up a rectangular aquarium for her fish. The aquarium has a length of 10 meters, a width of 6 meters, and a height of 3 meters. How much water can the aquarium hold?

Explanation: The volume of the aquarium is:

$\text{Volume}=10\times 6\times 3=180$ cubic meters

The aquarium can hold 180 cubic meters of water.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. C) 84 cubic cm

Explanation: The volume of a rectangular prism is:

Volume=length×width×height

Volume=7×4×3=84cubic cm

2. C) 400 cubic cm

Explanation: The volume of the box is:

Volume=10×5×8=400cubic cm

3. B) 2250 cubic meters

Explanation: The volume of the swimming pool is:

Volume=30×15×5=2250cubic meters

4. B) 216 cubic cm

Explanation: The volume of the cube is: Volume= 6^3 =216cubic cm

5. B) 1200 cubic cm

Explanation: The volume of the fish tank is: Volume=20×10×12=2400cubic cm

ADVANCED LEVEL

More than One Answer Type

6. A) Volume = Length × Width × Height, B) Volume = Length × Width × Depth, D)

Volume = Height × Width × Depth

Explanation: The volume of a rectangular prism can be calculated using any of these formulas, as they all represent the same concept. Length, width, and height/depth are the dimensions.

7. A) 512 cubic centimeters

Explanation: The volume of the cube is: Volume= 8^3 =512cubic centimeters

Fill In the Blanks

8. A cube has sides of length 8 cm. The volume of the cube is calculated as Volume = $8 \times 8 \times 8$.

9. To find the volume of a rectangular prism, multiply the length, width, and height together.

Matching Type

1. The volume of a cube with a side length of 3 cm ----- C. 27 cubic cm

Explanation: Volume= 3^3 =27cubic cm

2. The volume of a rectangular box with dimensions 6 cm (length), 4 cm (width), and 2 cm (height) ----- F. 48 cubic cm

Explanation: Volume=6×4×2=48cubic cm

3. The volume of a rectangular aquarium with dimensions 8 meters (length), 3 meters (width), and 2 meters (height) ----- B. 48 cubic meters

Explanation: Volume=8×3×2=48cubic meters

4. The volume of a rectangular swimming pool with dimensions 20 meters (length), 10 meters (width), and 3 meters (height) ----- D. 600 cubic meters

Explanation: Volume=20×10×3=600cubic meters

5. The volume of a cube with a side length of 4 cm ----- E. 64 cubic cm

Explanation: Volume= $4^3 = 64$ cubic cm

6. The volume of a gift box with dimensions 7 cm (length), 5 cm (width), and 3 cm (height) ----- F. 105 cubic cm

Explanation: Volume= $7 \times 5 \times 3 = 105$ cubic cm

Answer the Following Questions

11. Lucas wants to know how much water his swimming pool can hold. The pool is 30 meters long, 12 meters wide, and 4 meters deep. How much water will the pool hold?

Explanation: Volume= $30 \times 12 \times 4 = 1440$ cubic meters

The pool will hold 1440 cubic meters of water.

12. Emma has a storage box that is 15 cm long, 8 cm wide, and 10 cm high. How much space is inside the box?

Explanation: Volume= $15 \times 8 \times 10 = 1200$ cubic cm

The space inside the box is 1200 cubic cm.