**TEKS 5.4H _represent and solve_** problems related to perimeter and/or area and related to volume.
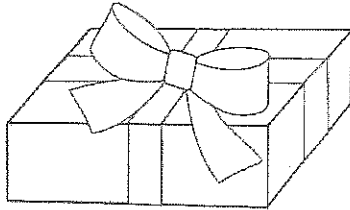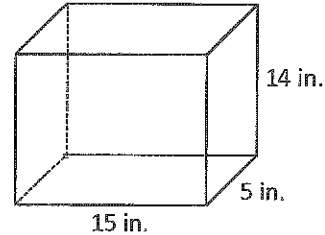
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1. A gift box has a volume of 495 cubic inches. If the area of the base measures 99 square inches, what is the height of the gift box?



Record your answer and fill in the bubbles. Be sure to use the correct place value.



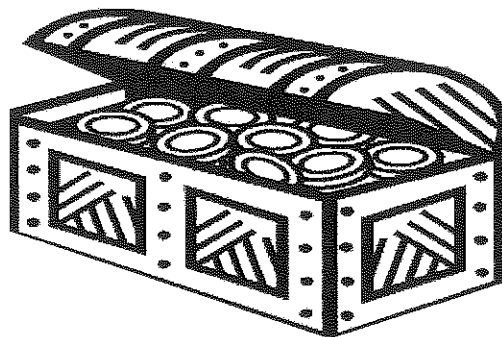2. A rectangular prism is shown below.



14 in.

5 in.

15 in.

Based on the dimensions of this prism, which of the following is true?

F. The volume of the prism measures 89 cubic inches.

G. The area of the base is equal to 75 square inches.

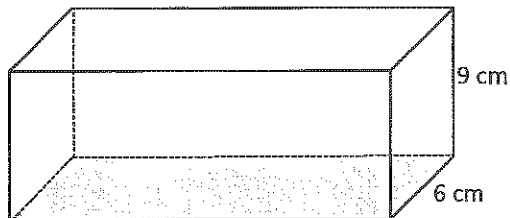H. The perimeter of the base equals 20 inches.

J. None of the above.

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3. Captain James has a treasure chest on his ship that is shaped like a rectangular prism. The area of the base measures 144 square inches. If the height of the treasure chest is 7 inches, what is the volume?

A. 908 cubic inches

B. 788 cubic inches

C. 20 cubic inches

D. 1,008 cubic inches

4. A rectangular prism is shown below.

- The volume of the prism is 810 cubic centimeters.
- The height of the prism is 9 cm.
- The width of the prism is 6 cm.
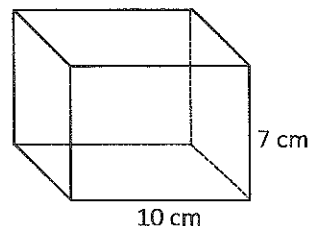


9 cm

6 cm

What is the perimeter of the base?

F. 15 cm

G. 21 cm

H. 42 cm

J. 90 cm

5. A rectangular prism has a volume of 1,000 cubic feet. Which of the following is true?

A. The area of the base will measure 100 square feet if the height of the prism is 10 feet.

B. The area of the base will measure 500 square feet if the height of the prism is 20 feet.

C. If the height of the prism is 25 feet, the area of the base will measure 400 square feet.

D. If the height of the prism is 100 feet, the area of the base will measure 100 square feet.

6. A rectangular prism is shown below.

- The perimeter of the base measures 38 centimeters.
- The length of the prism is 10 cm.
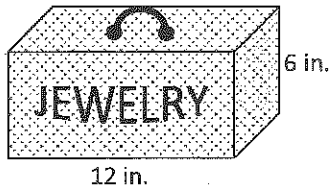- The height of the prism is 7 cm.



7 cm

10 cm

What is the volume of the rectangular prism, measured in cubic centimeters?

Record your answer and fill in the bubbles. Be sure to use the correct place value.

7. Jacie was given a jewelry box for her birthday.
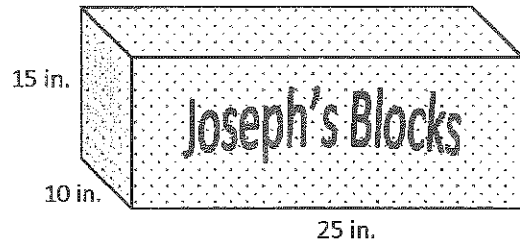
- The height of the jewelry box is 6 inches.
- The length of the jewelry box is 12 inches.
- The volume of the jewelry box is 288 cubic inches.



6 in.

JEWELRY

12 in.

What is the perimeter of the base, measured in inches?

A. 48 inches

B. 32 inches

C. 16 inches

D. 72 inches

8. Joseph keeps his building blocks inside a special case.



15 in.

Joseph's Blocks

10 in.

25 in.

Based on the dimensions of Joseph's box, which of the following is NOT true?

F. The volume of the prism measures 3,750 cubic inches.

G. The area of the base is equal to 250 square inches.

H. The perimeter of the base equals 60 inches.

J. Joseph's box is made of six rectangular faces.

9. A cube has a side length of 8 centimeters. What do the perimeter of the base and the volume of the cube measure?

A. Perimeter of the Base = 32 cm
Volume of the Cube = 64 cubic cm

B. Perimeter of the Base = 64 cm
Volume of the Cube = 512 cubic cm

C. Perimeter of the Base = 32 cm
Volume of the Cube = 512 cubic cm

D. Perimeter of the Base = 16 cm
Volume of the Cube = 64 cubic cm

10. A cube has a volume of 1,728 cubic inches. What do the perimeter of the base and the area of the base measure?

F. Perimeter of the Base = 48 inches
Area of the Base = 72 square inches

G. Perimeter of the Base = 12 inches
Area of the Base = 144 square inches

H. Perimeter of the Base = 48 inches
Area of the Base = 144 square inches

J. Perimeter of the Base = 24 inches
Area of the Base = 48 square inches