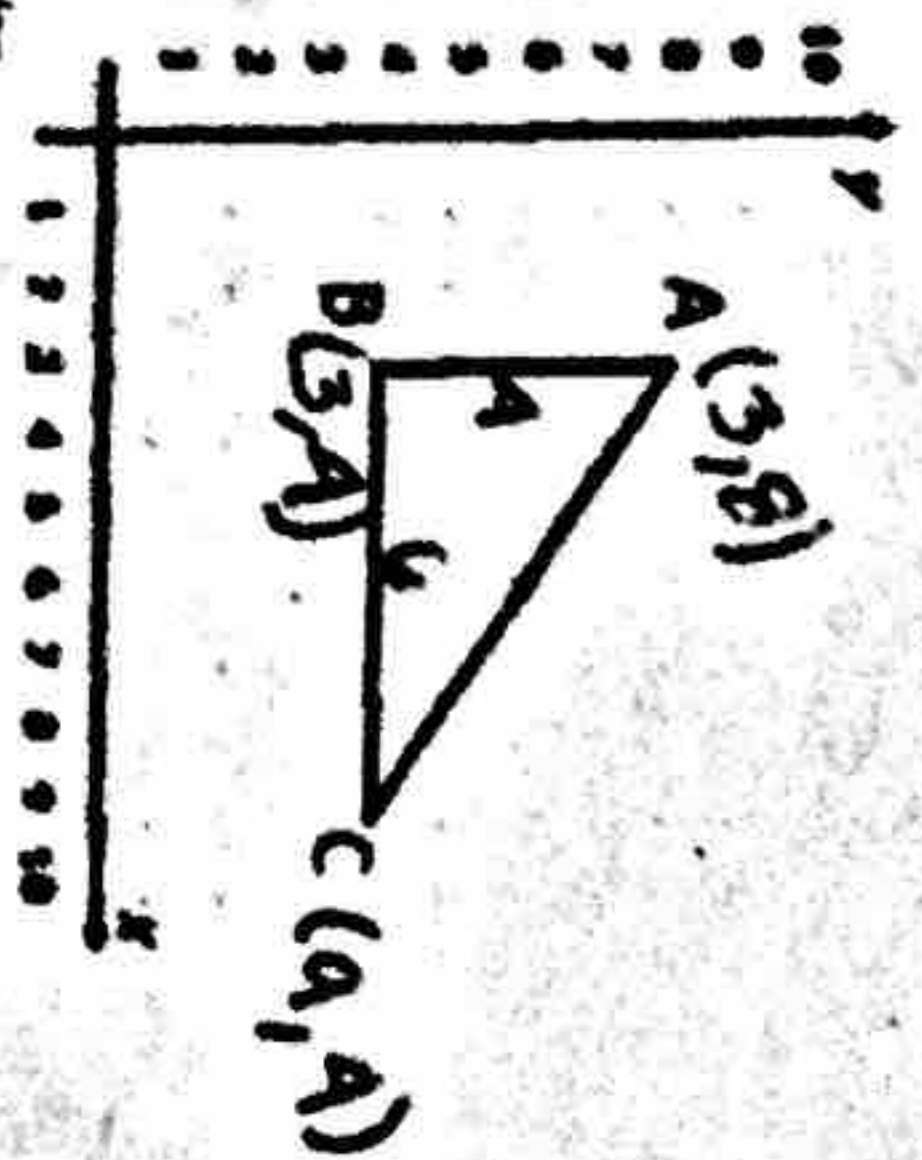


1) What is the area of the triangle?



$$A = \frac{1}{2}bh$$

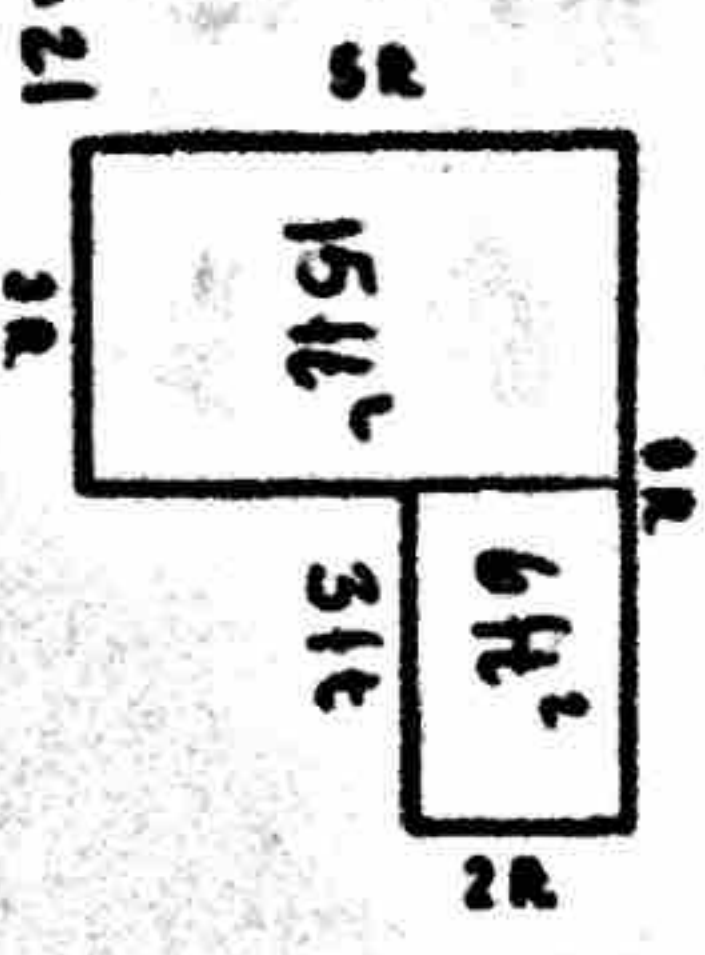
$$= \frac{1}{2} \cdot 6 \cdot 4$$

$$= 3 \cdot 4$$

$$= 12u^2$$

- A. 12 square units
- B. 15 square units
- C. 18 square units
- D. 24 square units

2) Which expression could NOT be used to determine the area of the composite figure?

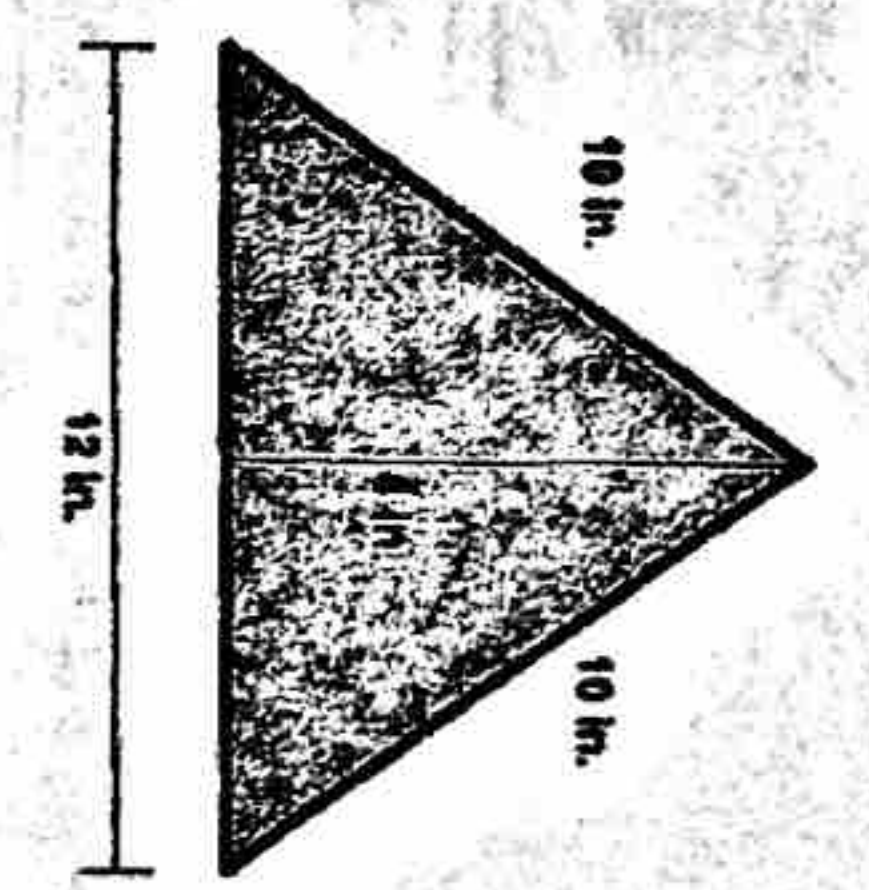


$$A = 15ft \cdot 16ft$$

$$= 21ft^2$$

- A. $(2 \cdot 6) + (3 \cdot 3) = 21$
- B. $(3 \cdot 3) + (2 \cdot 3) = 21$
- C. $(3 \cdot 6) - (3 \cdot 3) = 21$
- D. $(3 + 6) \cdot (6 + 2) = 182$

3) Nicholas, Margaret, Carrie and Audra attempted to solve for the area of a triangle. Which student is correct and why?



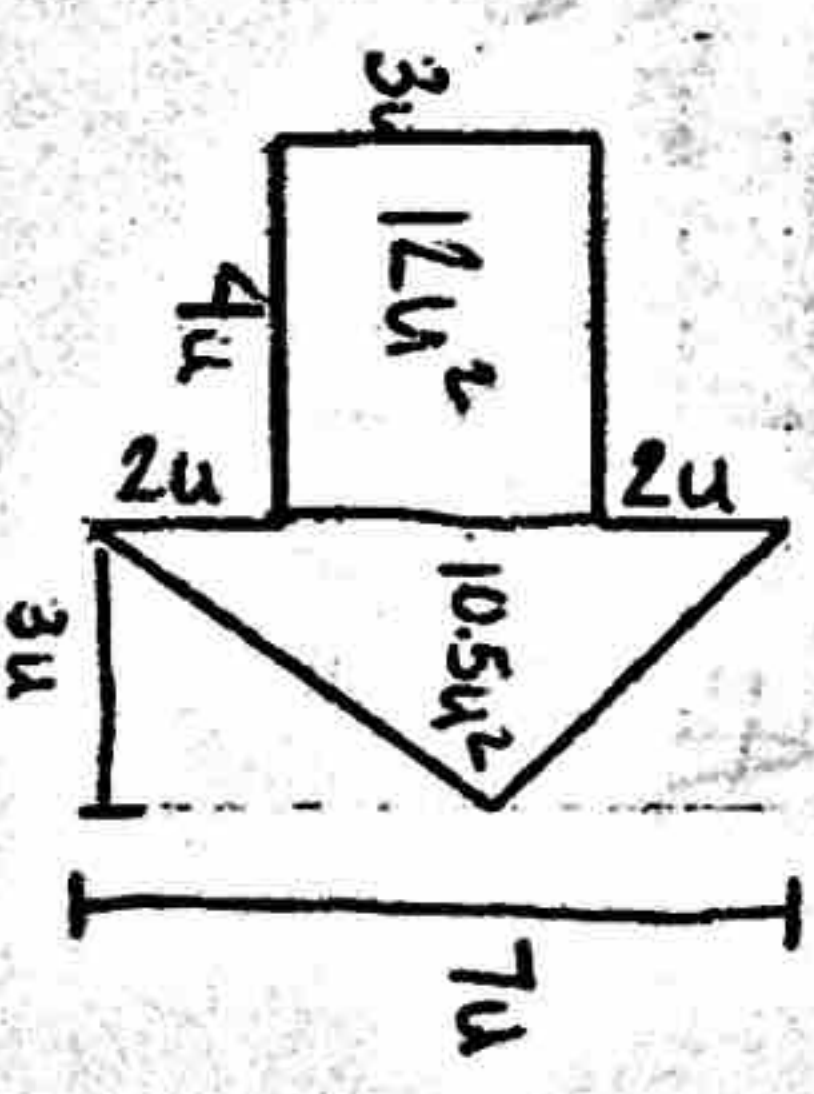
$$A = \frac{1}{2}(12)(8)$$

$$A = 6 \cdot 8$$

$$= 48in^2$$

- A. Nicholas is correct. He says the area is 32 in.², because $10 + 10 + 12 = 32$.
- B. Margaret is correct. She says the area is 48 in.², because $\frac{1}{2}(12)(8) = 48$.
- C. Carrie is correct. She says the area is 50 in.², because $\frac{1}{2}(10)(10) = 50$.
- D. Audra is correct. She says the area is 96 in.², because $12(8) = 96$.

4) What is the area of the figure?



$$A = \frac{1}{2} \cdot 7 \cdot 3$$

$$= 3.5 \cdot 3$$

$$= 10.5$$

$$10.5u^2 + 12u^2$$

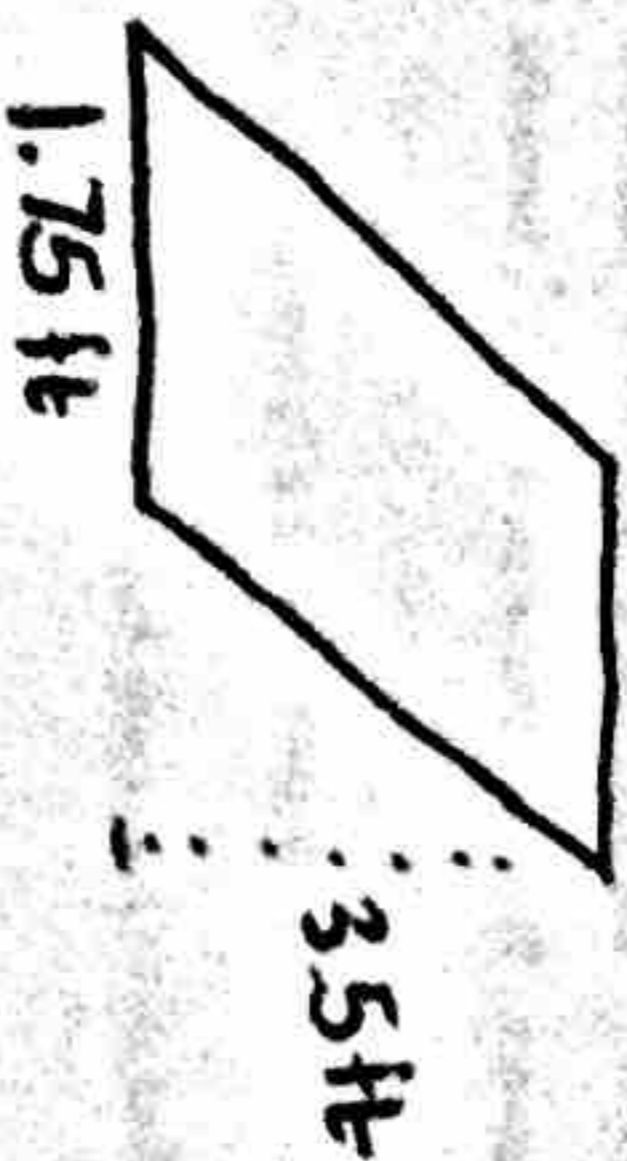
$$22.5u^2$$

- A. 21 square units
- B. 22.5 square units
- C. 25 square units
- D. 33 square units

5) A parallelogram has a height of 3.5 feet. The length of the base is half its height.

What is the area of the parallelogram rounded to the nearest tenth?

- A. 3.1 square feet
- B. 5.3 square feet
- C. 6.1 square feet
- D. 10.5 square feet



$$b = \frac{1}{2} \cdot 3.5 = 1.75$$

$$A = b \cdot h$$

$$= 1.75 \text{ ft} \cdot 3.5 \text{ ft}$$

$$= 6.125 \text{ ft}^2$$

6) Find the volume of the prism.



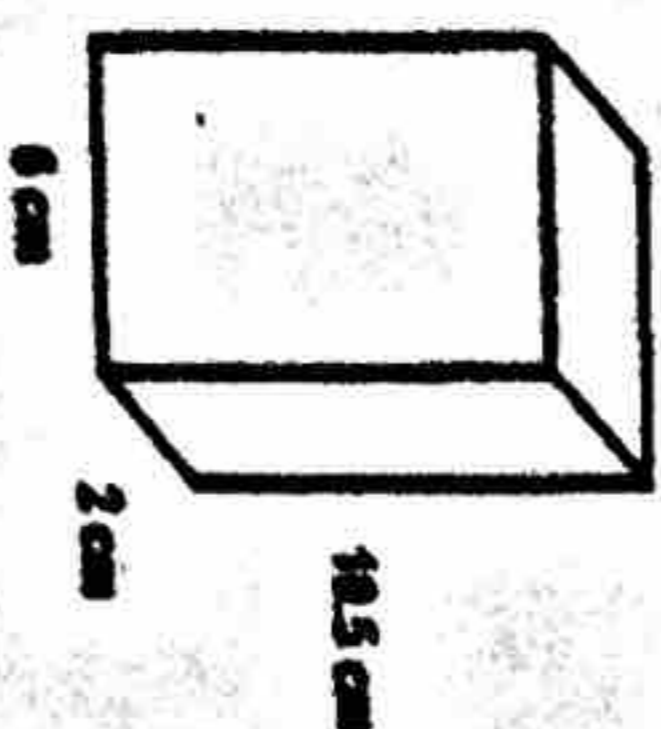
$$V = l \cdot w \cdot h$$

$$= 8 \text{ mm} \cdot 2.5 \text{ mm} \cdot 4 \text{ mm}$$

$$= 80 \text{ mm}^3$$

- A. 40 mm³
- B. 60 mm³
- C. 65 mm³
- D. 80 mm³

7) What is the volume of the rectangular prism?



$$V = l \cdot w \cdot h$$

$$= 6 \text{ cm} \cdot 2 \text{ cm} \cdot 10.5 \text{ cm}$$

$$= 126 \text{ cm}^3$$

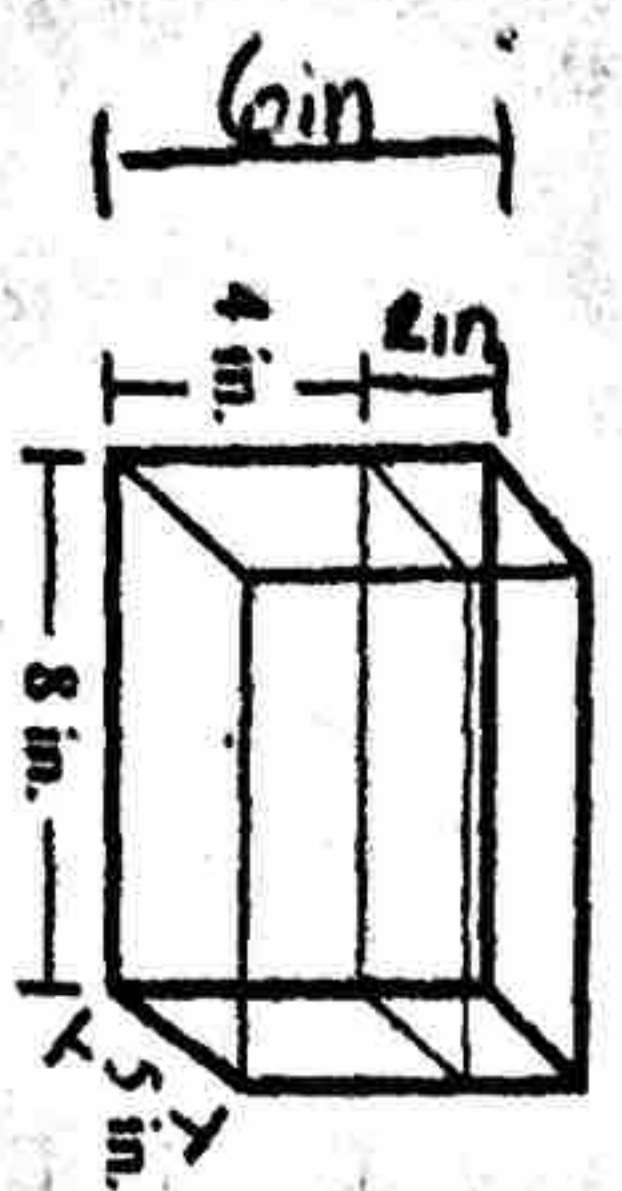
- A. 120 cm³
- B. 125 cm³
- C. 126 cm³
- D. 220 cm³

8) The 2015 Audi A7 has 24 1/2 cubic feet of cargo space.

Which of the following could be the dimensions for the cargo space?

- A. $2\frac{1}{2} \text{ ft} \cdot 3\frac{1}{2} \text{ ft} \cdot 5 \text{ ft}$ $43\frac{3}{4} \text{ ft}^3$
- B. $16 \text{ ft} \cdot 3\frac{1}{2} \text{ ft} \cdot 5 \text{ ft}$ 280 ft^3
- C. $2\frac{1}{2} \text{ ft} \cdot 2\frac{1}{2} \text{ ft} \cdot 4 \text{ ft}$ 25 ft^3
- D. $1\frac{2}{3} \text{ ft} \cdot 3\frac{1}{2} \text{ ft} \cdot 5 \text{ ft}$ $24\frac{1}{2} \text{ ft}^3$

9) A rectangular prism is 8 inches long and 5 inches wide. It is filled with water up to 2 inches below the top. The height of the water in the prism is 4 inches.



What is the volume of the rectangular prism?

- A. 80 cubic inches
- B. 160 cubic inches
- C. 240 cubic inches
- D. 320 cubic inches

$$V = l \cdot w \cdot h$$

$$= 8 \text{ in} \cdot 5 \text{ in} \cdot 6 \text{ in}$$

$$= 240 \text{ in}^3$$

10) How many cubes would it take to completely fill the rectangular prism?

$$4 \cdot 2 \cdot 1 = 8$$



Width: 3 m

$$3 \text{ m} \div \frac{3}{4} \text{ m} = \frac{3}{1} \cdot \frac{4}{3} = 4$$

4 cubes wide

height: $1\frac{1}{2} \text{ m}$

$$1\frac{1}{2} \text{ m} \div \frac{3}{4} \text{ m} = \frac{2}{1} \cdot \frac{4}{3} = \frac{8}{3} \text{ m} \div \frac{3}{4} \text{ m} = 1$$

2 cubes high 1 cube long

11)

A jeweler is shipping diamonds in jewelry boxes that are 2 1/2 inches by 2 1/2 inches by 1 1/2 inches. If 27 diamonds fit in the packing box, what could be the dimensions of the packing box?

- A. 3 in. by 3 in. by 3 in. $- 9 \text{ in}^3$
- B. 7 1/8 inches by 7 1/8 inches by 4 1/8 inches $253\frac{1}{8} \text{ in}^3$
- C. 7 1/8 inches by 7 1/8 inches by 13 1/8 inches $759\frac{1}{8} \text{ in}^3$
- D. 6 7/8 in. by 6 7/8 in. by 40 1/8 in. $184528\frac{1}{8} \text{ in}^3$

$$V = 2\frac{1}{2} \cdot 2\frac{1}{2} \cdot 1\frac{1}{2} = 9\frac{3}{8} \text{ in}^3$$

one diamond box

$$9\frac{3}{8} \cdot 27 = 253\frac{1}{8} \text{ in}^3$$

packaging box needs to be this big

12) What shapes are the lateral faces of all prisms?

- A. Rectangles
- B. Circles
- C. Triangles
- D. Pentagons

13) Which of the following correctly explains how to use the net of a 3-dimensional figure to find surface area?

- A. Find the perimeter of each face and add the perimeters of each shape together to find the surface area.
- B. Find the area of each face and add the area of each face to find the surface area.
- C. Find the length and width of each shape and add all together to find the surface area.
- D. Find the width of each face and multiply by the length of each face to find the surface area.

14) The formula $S = 6a^2$ is used to calculate the surface area of a cube with side lengths of a inches. What is the surface area of a cube with side lengths of 4 inches?

- A. 48 in²
- B. 96 in²
- C. 144 in²
- D. 270 in²

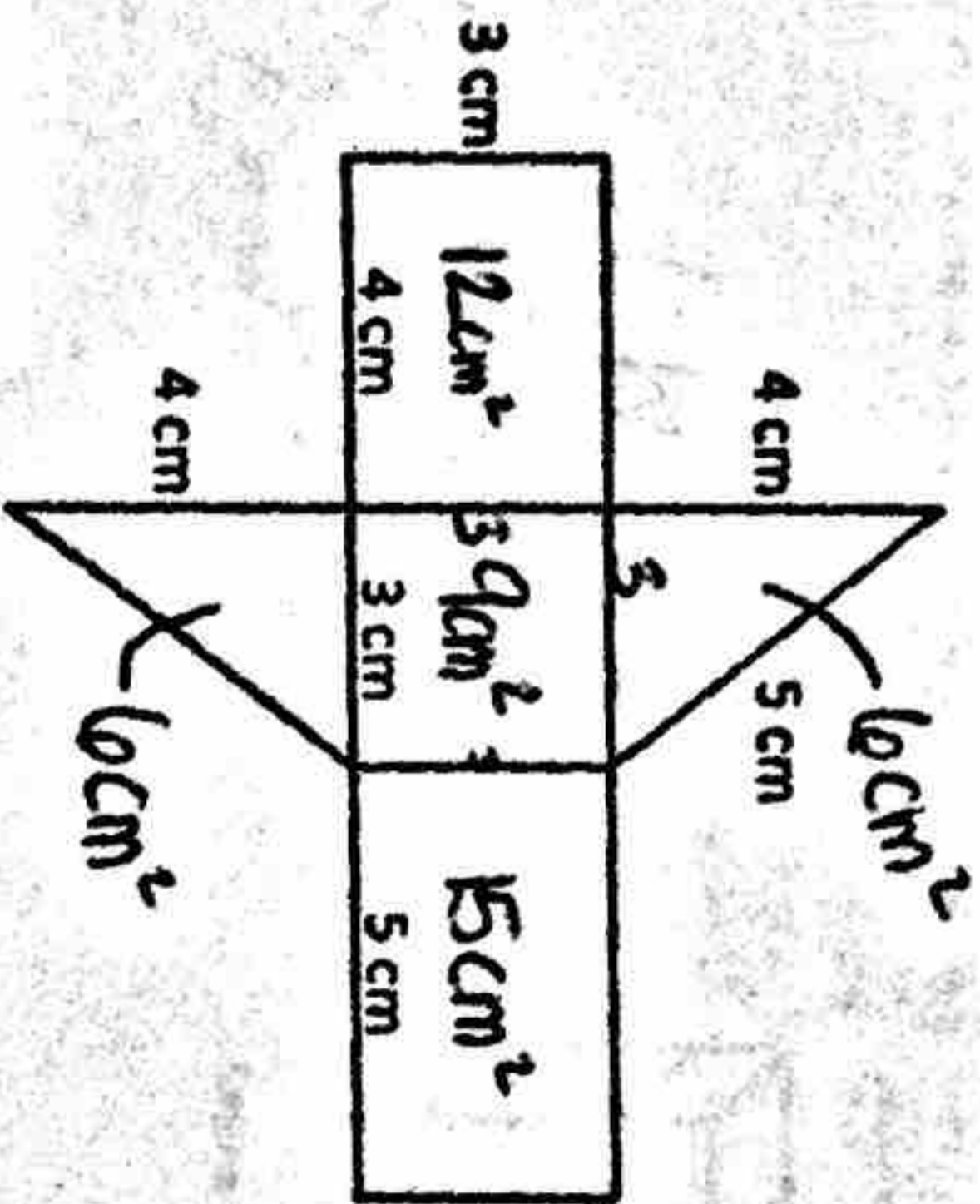
$$S = 6a^2; a = 4$$

$$S = 6 \cdot 4^2$$

$$= 6 \cdot 16$$

$$= 96 \text{ in}^2$$

15) What is the surface area of the triangular prism?



- A. 28 square cm
- B. 36 square cm
- C. 48 square cm
- D. 52 square cm

$$12$$

$$+ 12$$

$$+ 15$$

$$\hline 48 \text{ cm}^2$$

16) A cube has a surface area of 96 m². What is the side length of each face?

- A. 4 meters
- B. 8 meters
- C. 16 meters
- D. 24 meters

$$SA = 6a^2$$

↙ side length

$$\frac{96 \text{ m}^2}{6} = \frac{6a^2}{6}$$

$$16 = a^2$$

$$4 = a$$