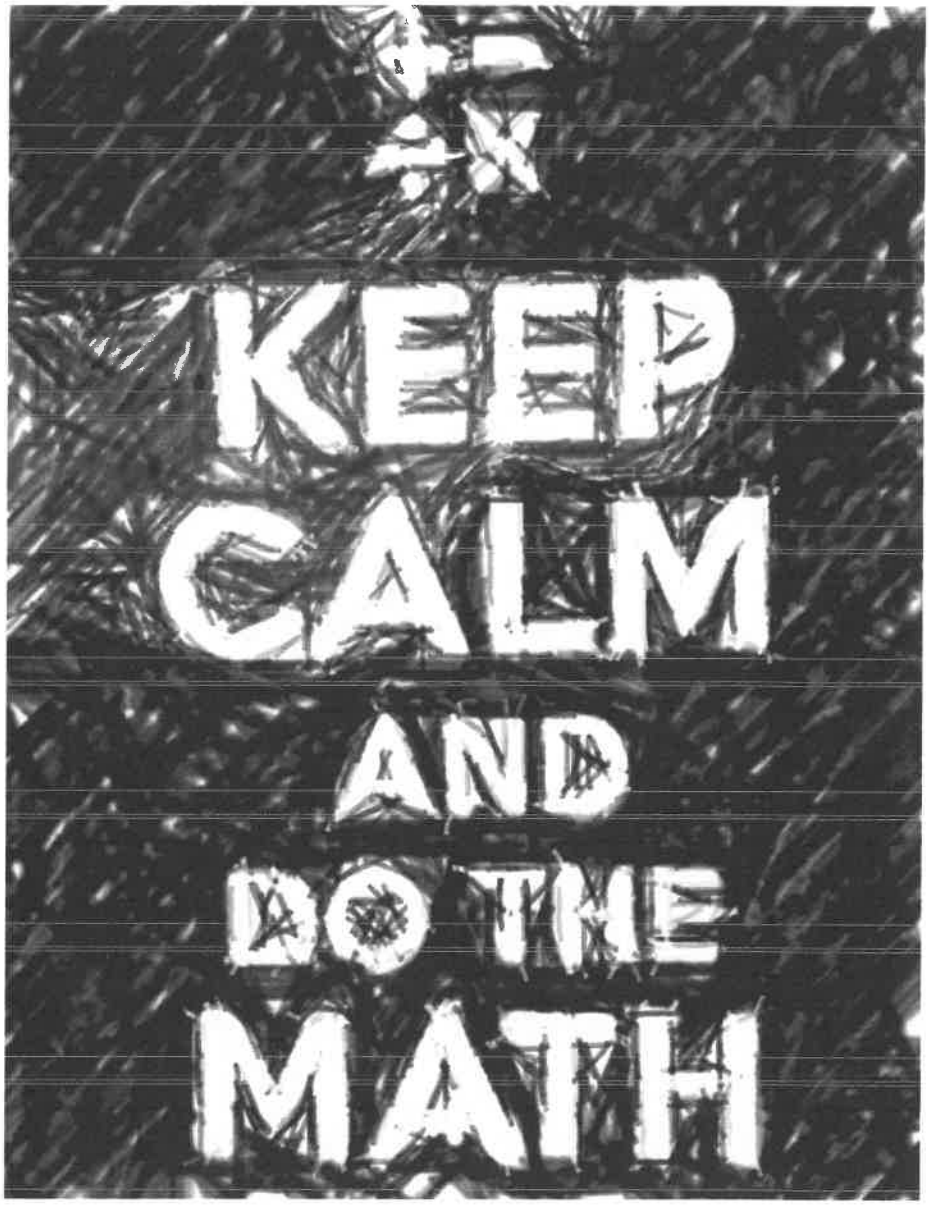
NAME: _____

Math P.A.T. Prep

Perimeter - SOLUTIONS



St. Brendan School

Mr. Martínez

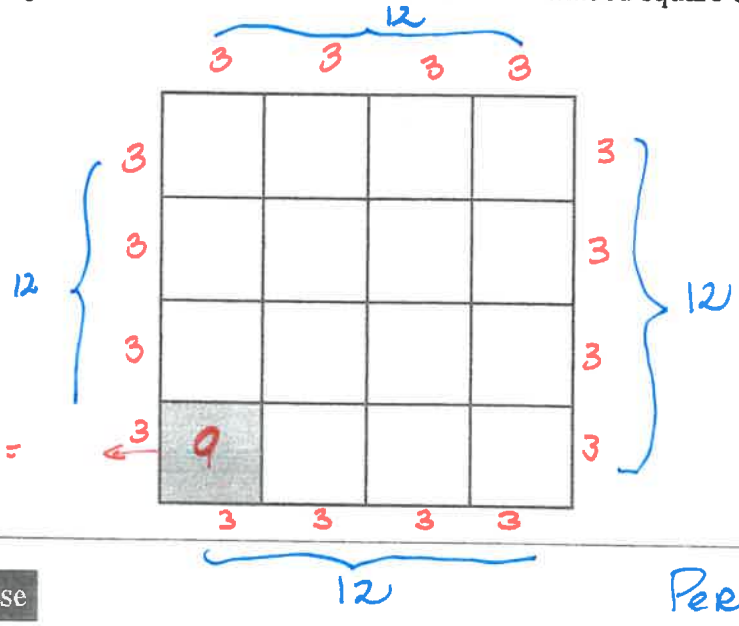
Perimeter (Sum of all sides)

- Single units cm, m, Km

Strategy:

- Always find the side lengths you need.

The squares of the grid below are identical. The area of the shaded square on the grid is 9 units^2.



Side length = $\sqrt{9} = 3$

- Side length → Area

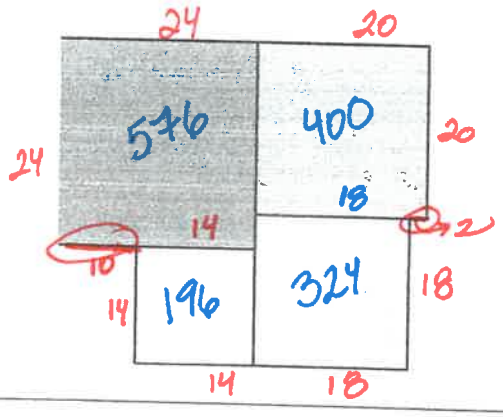
Numerical Response

7. The perimeter of the grid shown above is 48 cm units.

(Record your answer in the numerical-response section on the answer sheet.)

Perimeter = 12 + 12 + 12 + 12
= 48 cm

The design shown below is created by four squares with areas of 576 cm^2, 400 cm^2, 324 cm^2, and 196 cm^2.

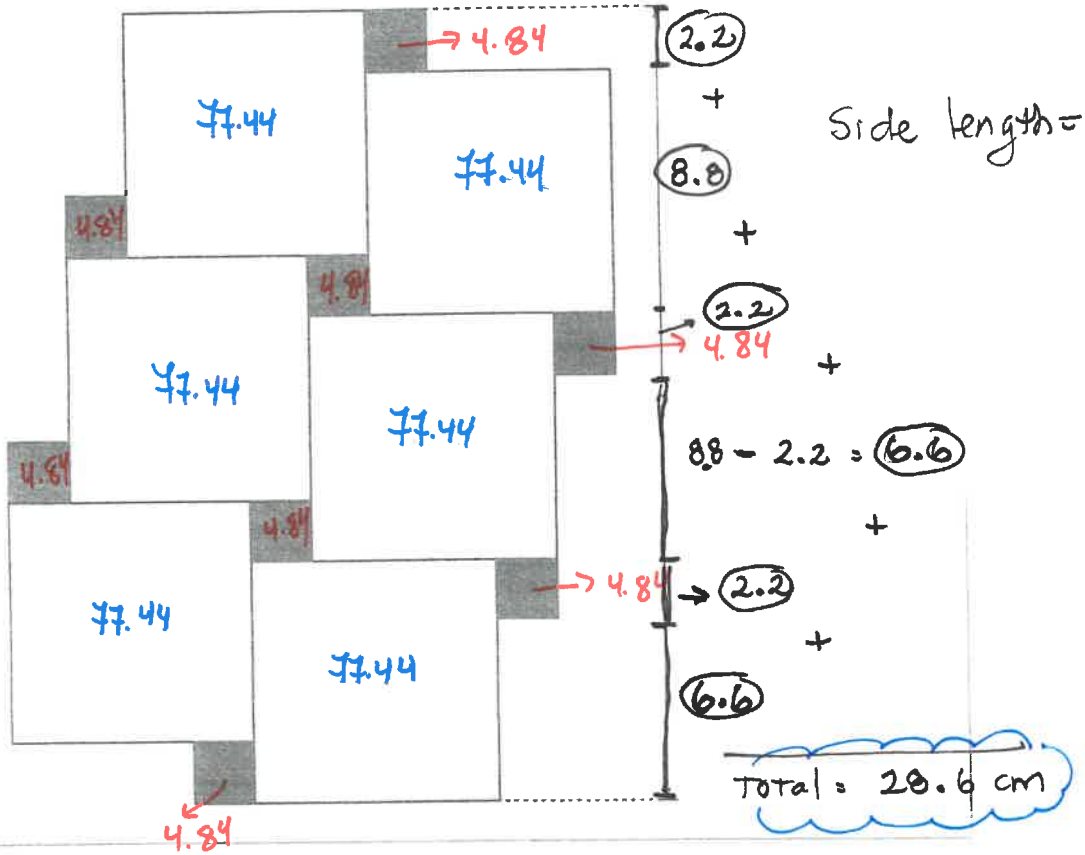


34. What is the perimeter of the design shown above?

A. 144 cm
B. 152 cm
C. 164 cm
D. 176 cm

Perimeter = 24 + 20 + 20 + 2 + 18 + 18 + 14 + 14 + 10 + 24
= 164 cm

Each grey square in the design below has an area of 77.44 cm^2, and each black square has an area of 4.84 cm^2.



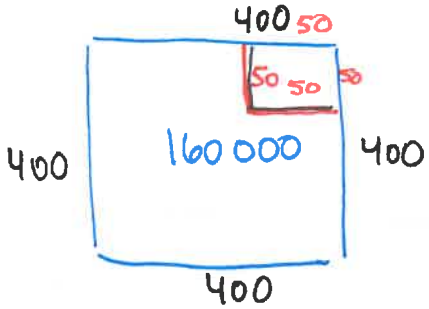
18. To the nearest tenth of a centimetre, what is the height of the design shown above?

A. 28.6 cm
B. 33.0 cm
C. 35.2 cm
D. 59.3 cm

Jack has a large, square section of land with an area of 160 000 m^2. A small, square section is fenced off to create a pasture for his goats. The length of one side of the small section of land is one-eighth of the length of one side of the large section of land.

29. What is the perimeter of the fence that encloses the small, square section of land?

A. 160 m
B. 200 m
C. 400 m
D. 566 m



$\frac{1}{8}$ of 400 = $\frac{400}{8}$ = 50

10. If a cube has a surface area of 2.16 m^2, then which of the following equations represents the height, h, of the cube?

→ cube

$\frac{6h}{6} = \frac{2.16\ m^2}{6}$

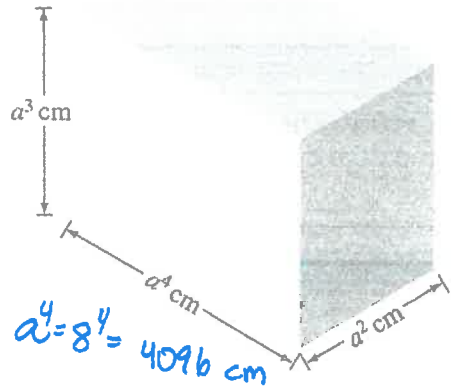
A. $h = \sqrt{\frac{2.16}{6}}$ m

B. $h = \sqrt{\frac{6}{2.16}}$ m

C. $h = \frac{2.16}{6}$ m

D. $h = 2.16 \times 6$ m

The shortest edge of the rectangular prism shown below is 64 cm.



$8^3 = 512$ cm ← a^3 cm

$a = 8$

$a^4 = 8^4 = 4096$ cm

$a^2 = 64$

then $a = \sqrt{64} = 8$

Note: The diagram shown above has **not** been drawn to scale.

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20. The length of the longest edge is

↳ a^4 is the longest

$8^4 = 4096$ cm

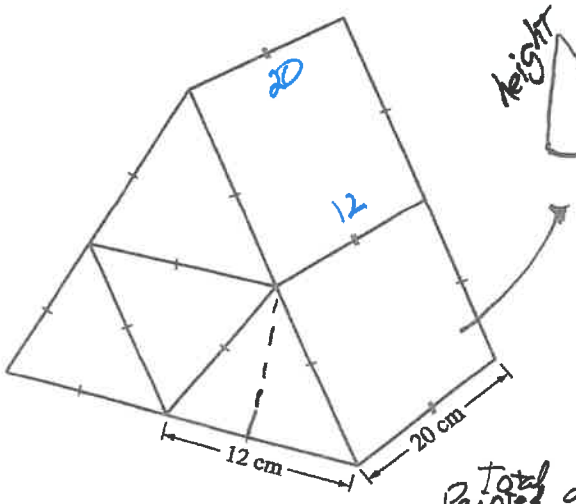
A. 256 cm

B. 512 cm

C. 1 024 cm

D. 4 096 cm

Four identical triangular prisms are arranged together to form one large, triangular prism, as shown below. The five exterior surfaces of the large prism are then painted.



Area of 6 Rectangles

$(20 \times 12) \times 6 = 1440$ cm²

$h = \sqrt{12^2 - 6^2} = 10.4$ cm

Surface area of triangle

Base × height / 2

Area of 8 Triangles

$= 8 \times \frac{(12 \times 10.4)}{2}$

$= 62.35\ cm^2 \times 8$

Total Painted area $= 1440 + 498.83$ cm²

$= 1938.83 \rightarrow 1939$ cm²

A. 1 939 cm^2

B. 2 016 cm^2

C. 2 659 cm^2

D. 2 736 cm^2

30. To the nearest square centimetre, what is the total area of the painted surfaces?