1.1 Square Roots of Perfect Squares

A new parking lot is a square with an area of 900 m^2. What is the side length of the square?

Think Area of a Sqaure

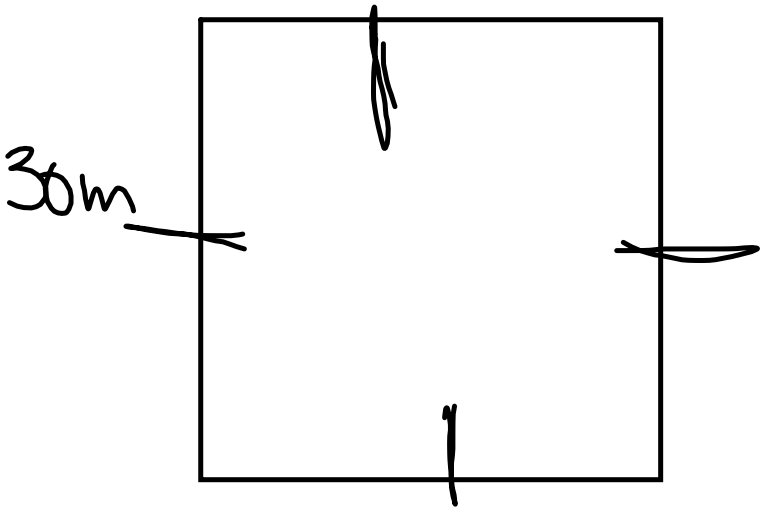
Write the area as a product

"Square" THEN...
Base = Height
$b = h$

Area = base x height

$Area = b \times b$

$Area = b^2$



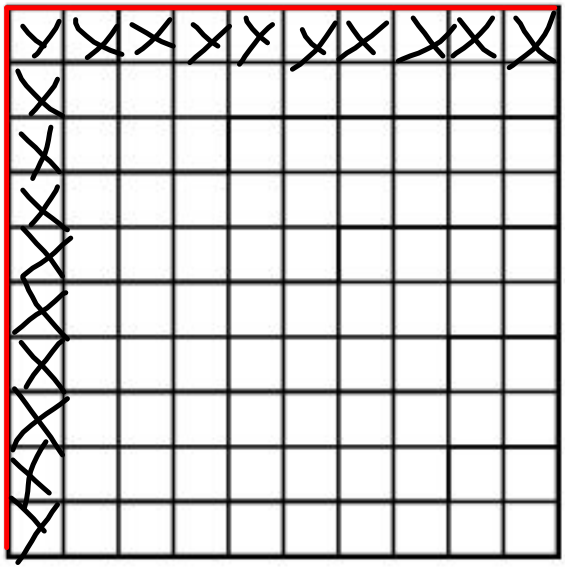
$Area = 900\ m^2$

$b^2 = 900m^2$

$\sqrt{b^2} = \sqrt{900}$

$b = 30\ m$

10



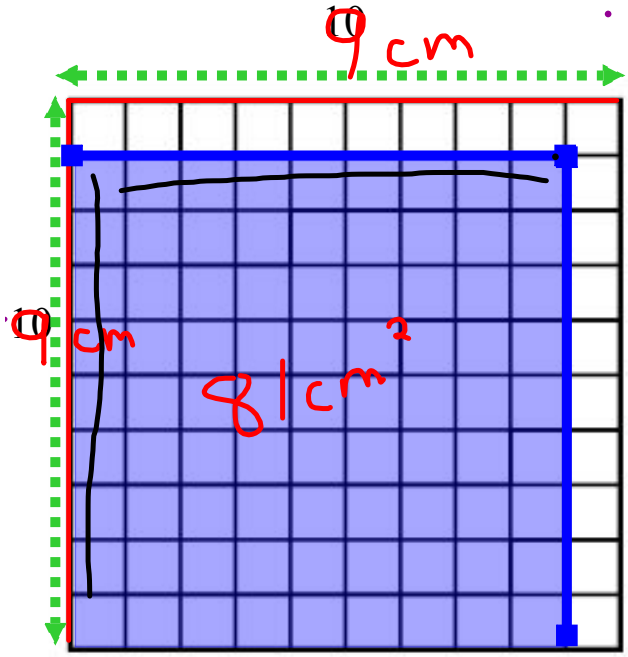
10

Area????

Area = b^2

Area = 10^2

100



This sqaure is divided into 100 equal parts.

What is the area of the blue square?

$\text{Area} = b^2$

$= 9^2$

$A = b \times b$

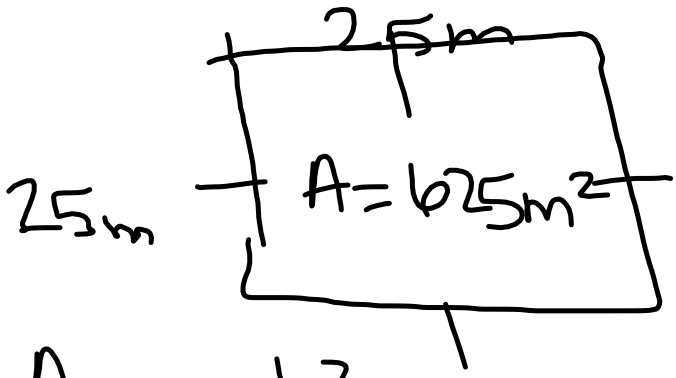
b^2

$A = 9 \times 9$

$A = 81$

Area of square

The Area of a square is 625 m^2, what is the length of the side?

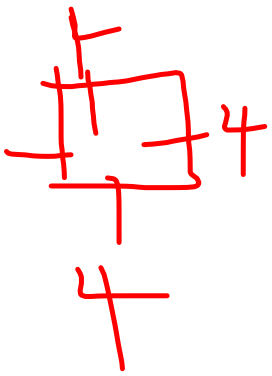


$$\text{Area} = b^2$$

$$\sqrt{625m^2} = \sqrt{b^2}$$

$$25m = b$$

Area of a Square	Side length as a Square Root
Area $= 9$	$= b^2 = 9 = 3$
16	4
81	9
49	7
169	13
100	10



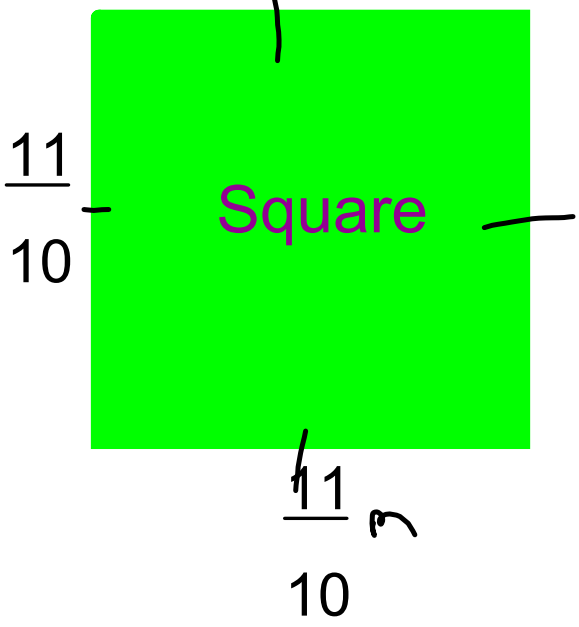
To determine the side length of a square we, calculate the "square root" of its area

This is the symbol to represent "Square Root"

Square Root is the opposite to Squaring a number

Area of a square = (length of the side)^2

What is the area of the following



What is the area?

$$\text{Area} = \left(\frac{11}{10}\right)^2$$

$$\frac{11^2}{10^2} = \frac{121}{100}$$

What is the perimeter?

$$\frac{11}{10} + \frac{11}{10} + \frac{11}{10} + \frac{11}{10} = \frac{44}{10}$$

Area of square = $\frac{49}{81}$ cm^2

$\frac{\sqrt{49}}{\sqrt{81}} = \frac{7}{9}$

What is the length of the sides?

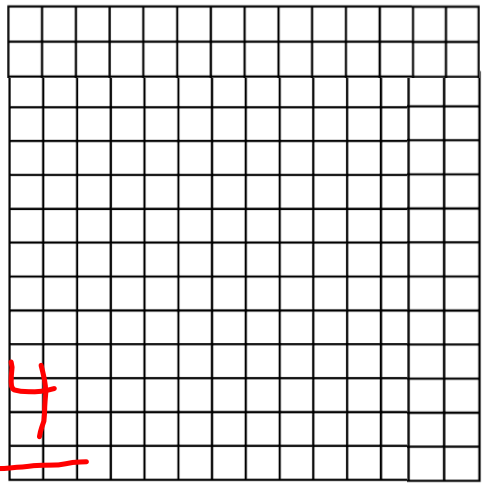
$\frac{7}{9}$

What it the perimeter of the square

$P = \frac{7}{9} + \frac{7}{9} + \frac{7}{9} + \frac{7}{9}$

$P = \frac{28}{9}$

Area of a square is $\frac{196}{100}$



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Then the length of a side is determined by taking the square root of the its area. ***

$A = b \times h$

$\sqrt{196} = 14$

$\sqrt{100} = 10$

$\frac{14}{10}$

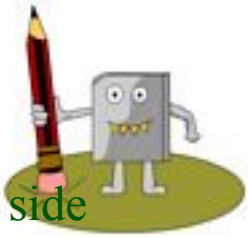
* Side Length $= \sqrt{\frac{196}{100}} = \frac{\sqrt{196}}{\sqrt{100}}$ use calculator

$= \sqrt{\frac{14 \times 14}{10 \times 10}}$

$= \frac{14}{10}$

The side lengthe is $\frac{14}{10}$ units

You Try!!!!



For each area of a sqaure find the length of its side

**Find the square root

1) $\frac{16}{100}$ $\frac{4}{10}$

2) $\frac{9}{100}$ $\frac{3}{10}$

3) $\frac{400}{100}$ $\frac{20}{10}$

4) $\frac{256}{100}$ $\frac{16}{10}$

Class/Homework

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5 (a, c, e, g)
7 (a, c, e, g, i)
8 (a, c, d, f, g, i, , l)
9 (a, b, g, h)
10(a, b)
11 (a)
14
16

3 (a, b, c)
#4 (a, b)
#6 (a, b)
7