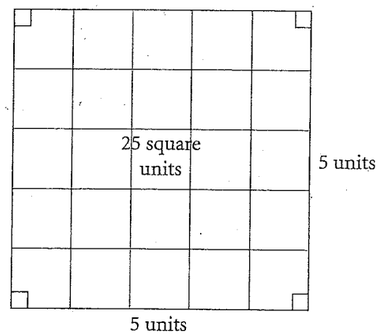
1.1 Square Numbers and Area Models

Quick Review

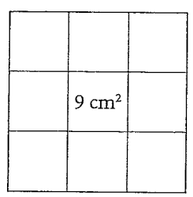
At Home / At School

- When you multiply a number by itself, you *square* the number.
  The square of 5 is $5 \times 5 = 25$
  We write: $5^2 = 5 \times 5 = 25$
  We say: Five squared is twenty five.
  25 is a **square number**, or a **perfect square**.

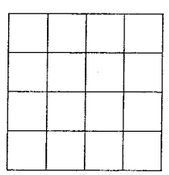
- You can model a square number by drawing a square whose area is equal to the square number.
  You can model 25 using a square with side length 5 units.



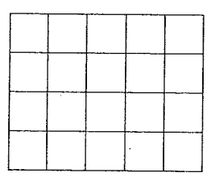
Find the perimeter of a square with area 9 cm².
First, find the side length of the square.
Since $3 \times 3 = 9$, the side length is 3 cm. So, the perimeter is 3 cm + 3 cm + 3 cm + 3 cm = 12 cm



16 is a perfect square because you can create a square with area 16 square units using square tiles.



20 is not a perfect square because you cannot create a square with area 20 square units using square tiles. The 4×5 rectangle is the closest to a square that you can get.



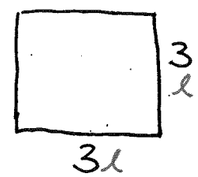
M8 1.1 Square Numbers and Area Models

Textbook & Notes
www.missharvey.weebly.com

What is a square # (□ #)
- a # multiplied by itself equals a square # (□ #)

Ex $3 \cdot 3 = 9$, 9 is a □ #

- a □ # is also called a perfect square



It is the area of a square! ^^

$A = 3 \cdot 3 = 9$

Examples

Ex 1 Show that 16 is a □ # or a perfect □

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

4 high

4 long

$4^2 = 16$ ← exponent = how many times you multiply a # by itself

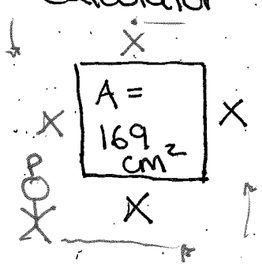
$4^2 = 4 \cdot 4 = 16$

$4^3 = 4 \cdot 4 \cdot 4 = 64$

$4^3 = 4 \boxed{y^x} 3 = 64$

calculator

Ex 2 A square picture has an area of 169 cm². Find the Perimeter.



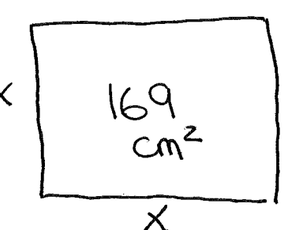
$A = X \cdot X = 169\ cm^2$

$P = X + X + X + X$

$= 13 + 13 + 13 + 13$

$\boxed{P = 52\ cm}$

$X \cdot X = 169$



$X = 13$

$13 \cdot 13 = 169$

Memorize Your First 20 Pefect Squares (□#)

$1^2 = 1 \cdot 1 = 1$

$2^2 = 2 \cdot 2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

$6^2 = 36$

$7^2 = 49$

$8^2 = 64$

$9^2 = 81$

$10^2 = 100$

$11^2 = 121$

$12^2 = 144$

$13^2 = 169$

$14^2 = 196$

$15^2 = 225$

$16^2 = 256$

$17^2 = 289$

$18^2 = 324$

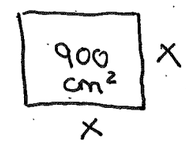
$19^2 = 361$

$20^2 = 400$

HW: 10, 11, 12, 16

Textbook: Homework: www.missharvey.weebly.com

10)



x =

Mark As you Go ✓

Do your corrections x

Mark Again ⊗