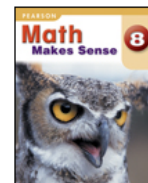


Warm Up Grade 8

Nov. 15, 2016



1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

1) Find the square root of each,

a) 121

$$\sqrt{121} = 11$$

b) 31

$$\sqrt{31} \approx 5.6$$

Diagram showing estimation of $\sqrt{31}$. A large green bracket groups $\sqrt{25}$ and $\sqrt{36}$. Below $\sqrt{25}$ is a red arrow pointing to the number 5. Below $\sqrt{36}$ is a red arrow pointing to the number 6. A green arrow points from the 5.6 approximation to the space between 5 and 6.

2) Prove that 28 is not perfect using factors.

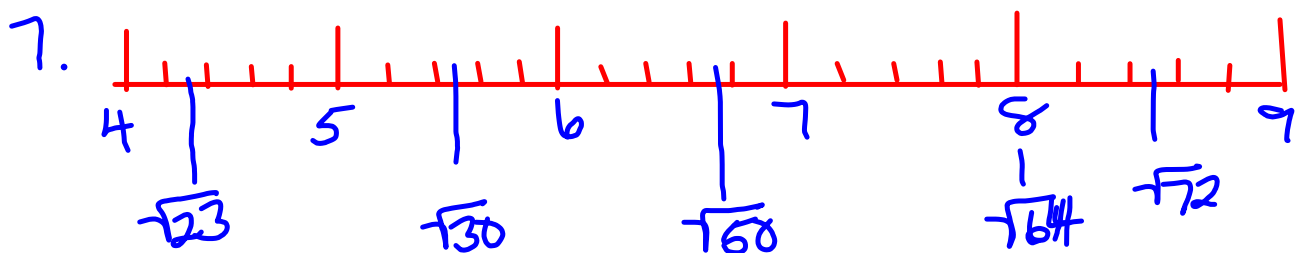
28
List factors.
1 x 28
2 x 14
4 x 7

28 has 6 factors
→ Even number of factors so NOT a perfect square

$$b. \sqrt{4} = 2 \quad \sqrt{9} = 3$$

$$\sqrt{7} \approx 2.7$$

Homework
Solutions



a) The estimates that are good are

$\sqrt{30}$ is in the middle between $\sqrt{25}$ and $\sqrt{36}$

$\sqrt{64}$ is exactly 8

$\sqrt{72}$ is in the middle between $\sqrt{64}$ and $\sqrt{81}$

b) $\sqrt{23}$ should be closer to 5 than 4
 $\sqrt{50}$ should be greater than 7

Homework
Solutions

a) $\sqrt{11}$
 $\sqrt{9}$ $\sqrt{16}$
 3 4
 $\sqrt{11} \approx 3.2$

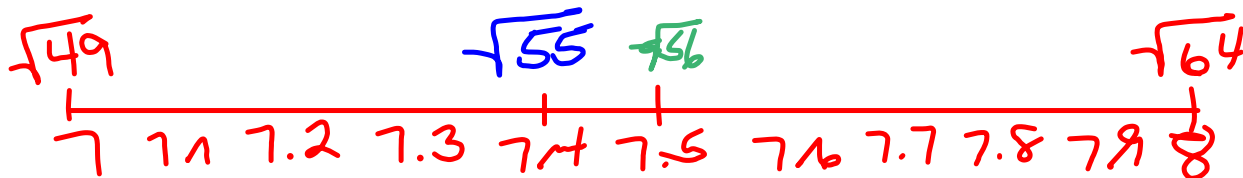
Perfect Squares	
1	4
9	16
25	36
49	64
81	100
121	144
169	196
225	

b) $\sqrt{40}$
 $\sqrt{36}$ $\sqrt{49}$
 6 7
 $\sqrt{40} \approx 6.3$

c) $\sqrt{30}$
 $\sqrt{25}$ $\sqrt{36}$
 5 6
 $\sqrt{30} \approx 5.5$

d) $\sqrt{55}$
 $\sqrt{49}$ $\sqrt{64}$
 7 8
 $\sqrt{55} \approx 7.4$

Middle between
49 and 64
 ≈ 56



9. $7, \sqrt{14}$

$$\sqrt{16} = 4, \text{ so } \sqrt{14} < 7$$

b) $8, \sqrt{60}$

$$8^2 = 64, \text{ so } \sqrt{60} < 8$$

c) $11, \sqrt{121}$

$$11^2 = 121, \text{ so } \sqrt{121} = 11$$

d) $12, \sqrt{150}$

$$\sqrt{144} = 12, \text{ so } \sqrt{150} > 12$$

10 a)

$$\begin{array}{cc} \sqrt{58} & \\ \sqrt{49} & \sqrt{64} \\ 7 & 8 \\ \sqrt{58} \approx 7.8 \end{array}$$

b)

$$\begin{array}{cc} \sqrt{70} & \\ \sqrt{64} & \sqrt{81} \\ 8 & 9 \\ \sqrt{70} \approx 8.3 \end{array}$$

c)

$$\begin{array}{cc} \sqrt{90} & \\ \sqrt{81} & \sqrt{100} \\ 9 & 10 \\ \sqrt{90} \approx 9.5 \end{array}$$

d)

$$\begin{array}{cc} \sqrt{151} & \\ \sqrt{144} & \sqrt{169} \\ 12 & 13 \\ \sqrt{151} \approx 12.2 \end{array}$$

Homework Solutions

Perfect Squares	
1	4
9	16
25	36
49	64
81	100
121	144
169	196
225	

1	4
9	16
25	36
49	64
81	100
121	144
169	196
225	

11. a) $\sqrt{17}$ is between 16 and 18

False

$\sqrt{17}$ is between 4 ($\sqrt{16}$) and 5 ($\sqrt{25}$)

Homework
& Solutions

b) $\sqrt{5} + \sqrt{5} = \sqrt{10}$

$$\sqrt{5} \approx 2.2$$

$$\sqrt{4} = 2$$

$$\sqrt{9} = 3$$

$$\sqrt{10} \approx 3.2$$

$$\sqrt{9} = 3$$

$$\sqrt{16} = 4$$

Is $2.2 + 2.2 = 3.2$, NO

so False $\sqrt{5} + \sqrt{5}$ does not equal $\sqrt{10}$

c) $\sqrt{13}$ is between 11 and 12

True

$$\sqrt{121} = 11 \quad \text{and} \quad \sqrt{144} = 12$$

and 13 is between 121 and 144

a) $\sqrt{23}$ b)

$\sqrt{16}$ $\sqrt{25}$

\Downarrow \Downarrow

4 5

≈ 4.8

$$B) \text{ Area of square} = \text{side}^2$$

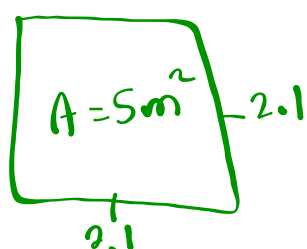
$$\text{Side} = \sqrt{\text{Area of square}}$$

a) $\sqrt{92 \text{ cm}^2}$

$\sqrt{81} \downarrow \downarrow 9$

$\sqrt{100} \downarrow \downarrow 10$

≈ 9.7



$$\text{Side} = \sqrt{5}$$

$$= \sqrt{4} \quad \sqrt{9}$$

\downarrow \downarrow

2 3

≈ 2.1

a) dimension is $2.1\text{m} \times 2.1\text{m}$

b) $P = 2.1 + 2.1 + 2.1 + 2.1$
 $= 8.4\text{m}$

Buy 10m

Page 30 #1 Mid-Unit Review

Perfect Squares

1
4
9
16
25
36
49
64
81
100
121
144
169
196
225

#2

#3

#5

#7

#9

#10

#11

Prime

2
3
5
7
11
13
17
19
23
29
31

on test
not
quiz

abestimates

Quiz Outline

- Find a square of a number
- Find the square root of a number

• Find $\sqrt{15 \times 15} = 15$

Or $\sqrt{81^2} = 81$

- If Area of Square garden is 144 m^2 what is the side length without calculator

$$\sqrt{x^2} = x$$

$$\sqrt{x \cdot x} = x$$