Warm Up Grade 8

Find the square of 81

$81^2 = 6561$

~~Use prime factorization to find the square root of 4356~~

HW Solution Pg 15

5) Square a # $\square^2$

a) $4^2 = 16$ b) $6^2 = 36$ c) $2^2 = 4$ d) $9^2 = 81$

6) Find

a) $8^2 = 64$ b) $3^2 = 9$ c) $1^2 = 1$ d) $7^2 = 49$

7) Find Square root $\Rightarrow \sqrt{\ }$

a) 25
$\sqrt{25} = 5$

b) 81
$\sqrt{81}$
$= 9$

c) 64
$\sqrt{64}$
$= 8$

d) 169
$\sqrt{169}$
$= 13$

8) Square

a) 1
$1^2 = 1$

b) 10
10^2
100

c) 100
100^2
10000

d) 1000
1000^2
$= 1000\,000$

11) a) 225 → has 9 factors
↓
odd # of factors so 225 Perfect square #

b) 500 → has 12 factors
↓
even # of factors so 500 is NOT perfect

14) (on test ; on district test)

Find square Root of each

a) 3^2

$\sqrt{3^2}$

$\sqrt{9}$

3

b) 6^2

$\sqrt{6^2}$

$\sqrt{36}$

6

c) 10^2

$\sqrt{10^2}$

$\sqrt{100}$

10

d) 117^2

$\sqrt{117^2}$

117

HW Solutions

Square a number → means $\square^2$
→ times a number by itself.

Square root = use $\sqrt{\ }$
(side of a square)

Rule $\sqrt{x^2} = x$ or $(\sqrt{x})^2 = x$

Ex) $\sqrt{250^2} = 250$

$\sqrt{3^2} = 3$

Estimating Square Roots Section 1.4

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

We have already learned different ways to calculate square roots of perfect square, now we will estimate square roots of any given number.

When **estimating square roots:**

Step 1) you have to find the perfect square before and after the number you are finding the square root of,

Step 2) then determine which perfect square the number is closer to.
This will help you estimate the square root.

Step 3) Make sure it is square root of perfect squares

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

Estimating square roots of non-perfect number.

$\sqrt{85}$

Estimate the square root of 85.

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

$\sqrt{85}$ closer $\sqrt{81}$ $\sqrt{100}$

$\sqrt{81} = 9$

$\sqrt{100} = 10$

≈ 9.2

Then estimate the square root of 85

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

You Try

a) Estimate the $\sqrt{20}$

b) Estimate the $\sqrt{60}$

c) Estimate the $\sqrt{108}$

d) Estimate the $\sqrt{45}$

a) $\sqrt{20}$

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

4 5

≈ 4.4

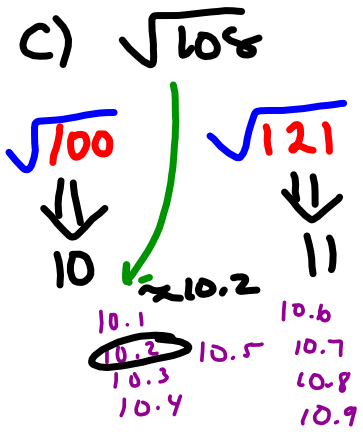
b) $\sqrt{60}$

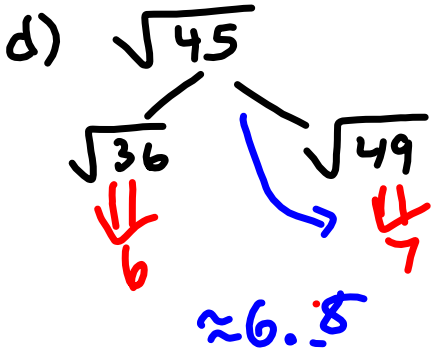
$\sqrt{49}$ $\sqrt{64}$

7 8

0.5

≈ 7.7


c) √106
√100
√121
10
11
≈10.2
10.1
10.2
10.3
10.4
10.5
10.6
10.7
10.8
10.9


d) √45
√36
√49
6
7
≈6.8

a) Estimate $\sqrt{20}$

Solutions

$\sqrt{20}$

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

4 5

$\sqrt{20}$ must be between 4 and 5

20 is almost in the middle between 16 and 25

so $\sqrt{20}$ is in the middle between 4 and 5

Est $\sqrt{20} \approx 4.5$

b) $\sqrt{60}$

$\sqrt{49}$ $\sqrt{64}$

7 8

60 is between 49 and 64

so $\sqrt{64}$ is between 7 and 8

60 is closer to 64,

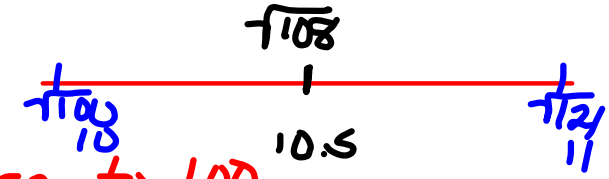
so $\sqrt{60}$ is closer to 8

Est $\sqrt{60} \approx 7.8$

c) $\sqrt{108}$

$\sqrt{100}$ $\sqrt{121}$

10 11



108 is a little closer to 100

Est $\sqrt{108} \approx 10.4$

d) $\sqrt{45}$

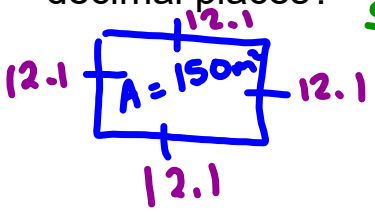
$\sqrt{36}$ $\sqrt{49}$

6 7

Est $\sqrt{45} \approx 6.8$ or 6.9

A square garden has area 150 m^2.

a) What are the approximate dimensions of the garden to ~~3~~ one decimal places?



Side = $\sqrt{Area}$

$\sqrt{150}$

$\sqrt{144}$ $\sqrt{169}$

12 13

≈ 12.1 m

b) Fencing is needed to keep out the goats. About how much fencing would be needed around the garden?

Per = Side + Side + Side + Side

12.1 + 12.1 + 12.1 + 12.1

48.1 m

Quiz Thursday.

Homework pg. 25

$\sqrt{3\times3}$

$\sqrt{9}$

$= 3$

#2, #3, #4, #5

$\sqrt{ab}$

$\sqrt{abcd}$

BREGAN

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

4a) $\sqrt{15\times15}$

$\sqrt{225}$

$= 15$