Warm Up Grade 8

1) Find the square root of each, (No calculators)

a) 121

$\sqrt{121} = 11$

b)31

$\sqrt{31}$

$\sqrt{25}$ $\sqrt{36}$

5 6 closer

$\sqrt{31} \approx 5.6$

2) If a number has 17 factors what can you tell me about that number?

odd # of factors

Since we have an odd number of factors then the number is a perfect Square number.

3) Find the following without using a calculator (But show which symbol goes with each)

a) Square 16

$16^2 = 256$

b) Square root of 16

$\sqrt{16} = 4$

4) Estimate each off the following (Show work)

a) $\sqrt{24}$

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

4 5 closer

$\sqrt{24} \approx 4.9$

b) $\sqrt{125}$

$\sqrt{121}$ $\sqrt{144}$

11 12 closer

$\sqrt{125} \approx 11.2$

5) Put the following number in order from least to greatest (SHOW WORK)

10, $\sqrt{28}$ $\sqrt{15}$, $\sqrt{25}$, 3.4

5.1 3.9 5

Answer

$3.4, \sqrt{15}, \sqrt{25}, \sqrt{28}, 10$

$\sqrt{28}$

$\sqrt{25}$ $\sqrt{36}$

5 6 closer

≈ 5.1

$\sqrt{15}$

$\sqrt{9}$ $\sqrt{16}$

3 4

$\sqrt{15} \approx 3.9$

6) Use prime factorization for finding the square root of 23716

23716

2 11858

2 5929

7 847

7 121

11 11

$\sqrt{23716} = \sqrt{(2\times2)\times(7\times7)\times(11\times11)}$

$= \sqrt{2\times2} \times \sqrt{7\times7} \times \sqrt{11\times11}$

$= 2 \times 7 \times 11$

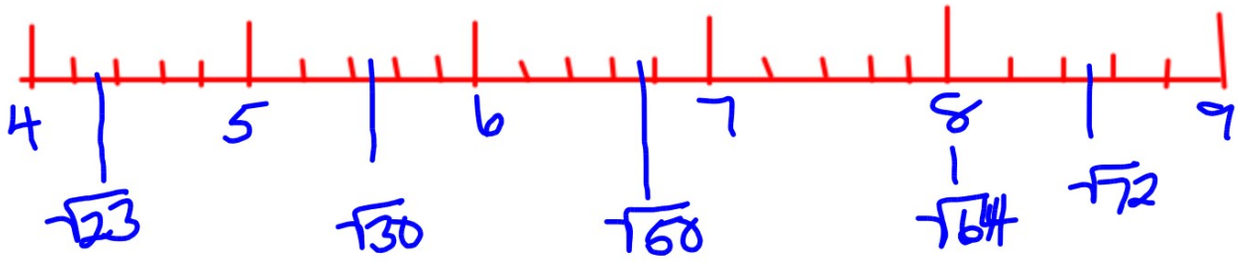
$\sqrt{23716} = 154$

Homework Solutions

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

$\sqrt{7} \approx 2.7$

7.



a) The estimates that are good are

$\sqrt{30}$ 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

8 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

$\sqrt{30} \approx 5.5$

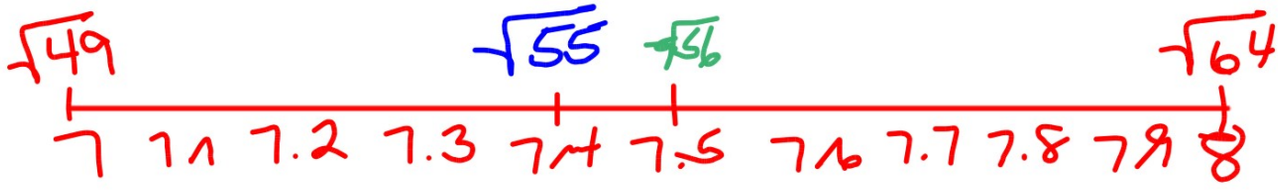
d) $\sqrt{55}$

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

7 8

$\sqrt{55} \approx 7.4$

Middle between 49 and 64 $\approx$ 56



Homework

Solutions

9. 7, $\sqrt{14}$

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

b) 8, $\sqrt{60}$

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

c) 11, $\sqrt{121}$

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

d) 12, $\sqrt{150}$

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

10 a) $\sqrt{58}$

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

7 8

$\sqrt{58} \approx 7.8$

b) $\sqrt{70}$

$\sqrt{64}$ $\sqrt{81}$

8 9

$\sqrt{70} \approx 8.3$

c) $\sqrt{90}$

$\sqrt{81}$ $\sqrt{100}$

9 10

$\sqrt{90} \approx 9.5$

d) $\sqrt{151}$

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

12 13

$\sqrt{151} \approx 12.2$

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

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

Homework Solutions

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

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) $\sqrt{131}$ is between 11 and 12
True

$\sqrt{121}=11$ and $\sqrt{144}=12$
and 131 is between 121 and 144

Test Review

Page 30 #1, #2, #3, #5, #7

#9, #10, #11

Test outline

Page 1 (No Calculators)

- 5 MC 3 Short Response
  - Must know $\sqrt{x^2} = x$ or $(\sqrt{x})^2 = x$ Ex) $\sqrt{9^2} = 9$
  - Must know difference of square root of a number & squaring a number
  - If a number has an odd or even number of factors then what does that tel you about the number

Page 2) (Calculator)

- Product of perfect squares
- Product of Primes (Tree)