



Warm Up Grade 8 Tuesday, Nov. 8 Quiz Tomorrow



Use product of perfect squares to find the square root of the following:

(a) 5184 (b) 5929 (c) 7056

$$= \sqrt{5184}$$

$$= \sqrt{144 \times 36}$$

$$= \sqrt{144} \times \sqrt{36}$$

$$= 12 \times 6$$

$$= 72$$

$$\begin{aligned} \text{b) } \sqrt{5929} &= \sqrt{121 \times 49} \\ &= \sqrt{121} \times \sqrt{49} \\ &= 11 \times 7 \\ &= 77 \end{aligned}$$

Perfect Squares

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

$$\begin{aligned} \text{c) } \sqrt{7056} &= \sqrt{196 \times 36} \\ &= \sqrt{196} \times \sqrt{36} \\ &= 14 \times 6 \\ &= 84 \end{aligned}$$

Warm Up Grade 8

solutions

Use product of perfect squares to find the square root of the following:

(a) 5184

(b) 5929

(c) 7056

(d) 1089

(e) 576

(f) 11 025

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

$$\begin{aligned} \text{a) } \sqrt{5184} &= \sqrt{144 \times 36} \\ &= \sqrt{144} \times \sqrt{36} \\ &= 12 \times 6 \\ &= 72 \end{aligned}$$

$$\boxed{\sqrt{5184} = 72}$$

Homework Solutions

Homework pg. 16 # 12 -15

$$\begin{array}{l}
 \text{ii) } 96 \\
 \hline
 1 \times 96 \\
 2 \times 48 \\
 3 \times 32 \\
 4 \times 24 \\
 6 \times 16 \\
 8 \times 12 \\
 \text{not square}
 \end{array}$$

$$\begin{array}{l}
 \text{iv) } 484 \\
 \hline
 1 \times 484 \\
 2 \times 242 \\
 4 \times 121 \\
 11 \times 44 \\
 22 \times 22 \\
 \text{perfect square} \\
 \text{odd number of factors}
 \end{array}$$

$$\begin{array}{l}
 \text{iii) } 240 \\
 \hline
 1 \times 240 \\
 2 \times 120 \\
 3 \times 80 \\
 4 \times 60 \\
 5 \times 48 \\
 6 \times 40 \\
 8 \times 30 \\
 10 \times 24 \\
 12 \times 20 \\
 15 \times 16 \\
 \text{not a square}
 \end{array}$$

$$\begin{array}{l}
 \text{v) } 152 \\
 \hline
 1 \times 152 \\
 2 \times 76 \\
 4 \times 38 \\
 8 \times 19 \\
 \text{not a square}
 \end{array}$$

$$\begin{array}{l}
 \text{vi) } 441 \\
 \hline
 1 \times 441 \\
 3 \times 147 \\
 7 \times 63 \\
 9 \times 49 \\
 21 \times 21 \\
 \text{perfect square}
 \end{array}$$

$$\begin{array}{l}
 \text{vii) } 54 \\
 \hline
 1 \times 54 \\
 2 \times 27 \\
 3 \times 18 \\
 6 \times 9 \\
 \text{not a square}
 \end{array}$$

Homework Solutions

13 a) $\sqrt{1} = 1$

c) $\sqrt{144} = 12$

e) $\sqrt{16} = 4$

g) $\sqrt{625} = 25$

b) $\sqrt{49} = 7$

d) $\sqrt{9} = 3$

f) $\sqrt{100} = 10$

h) $\sqrt{225} = 15$

14 a) $3^2 = 9$

$\sqrt{9} = 3$

b) $6^2 = 36$

$\sqrt{36} = 6$

c) $10^2 = 100$

$\sqrt{100} = 10$

d) $\sqrt{117^2} = 117$

15. $\sqrt{4} = 2$

b) $\sqrt{121} = 11$

c) $\sqrt{225} =$

$15 \times 15 = 225$

so $\sqrt{225} = 15$

d) $\sqrt{676}$

$\sqrt{26 \times 26}$

26

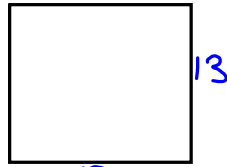
Perfect Squares

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

Homework pg. 16 # 16-19

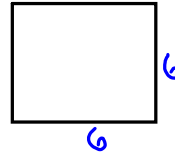
Homework Solutions

16. a) $\sqrt{169} = 13$



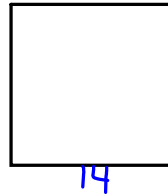
$169 = 13 \times 13$

b) $\sqrt{36} = 6$



$36 = 6 \times 6$

c) $\sqrt{196} = 14$



$196 = 14 \times 14$

17 $\sqrt{\quad} = 23$

$\sqrt{23^2} = 23$

$\sqrt{529} = 23$

18. $3^2 = 9$

$\sqrt{9} = 3$

The answer of 3^2 is 9, and the answer of $\sqrt{9}$ is 3, so this shows that taking the square root is the inverse of squaring a number.

19. a) $\sqrt{36}, 36, 4, \sqrt{9}$

$6, 36, 4, 3$

Least \rightarrow Greatest $\sqrt{9}, 4, \sqrt{36}, 36$

b) $\sqrt{400}, \sqrt{100}, 19, 15$

$20, 10$

$\rightarrow \sqrt{100}, 15, 19, \sqrt{400}$

c) $\sqrt{81}, 81, \sqrt{100}, 11$

$9, 10$

$\rightarrow \sqrt{81}, \sqrt{100}, 11, 81$

d) $\sqrt{49}, \sqrt{64}, \sqrt{36}, 9$

$7, 8, 6, 9$

$\rightarrow \sqrt{36}, \sqrt{49}, \sqrt{64}, 9$

Study

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

or

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

$$\text{Ex) } \sqrt{3^2} = 3$$

or

$$\sqrt{4 \times 4} = 4$$

Prime numbers are numbers that are only divisible by 1 and itself

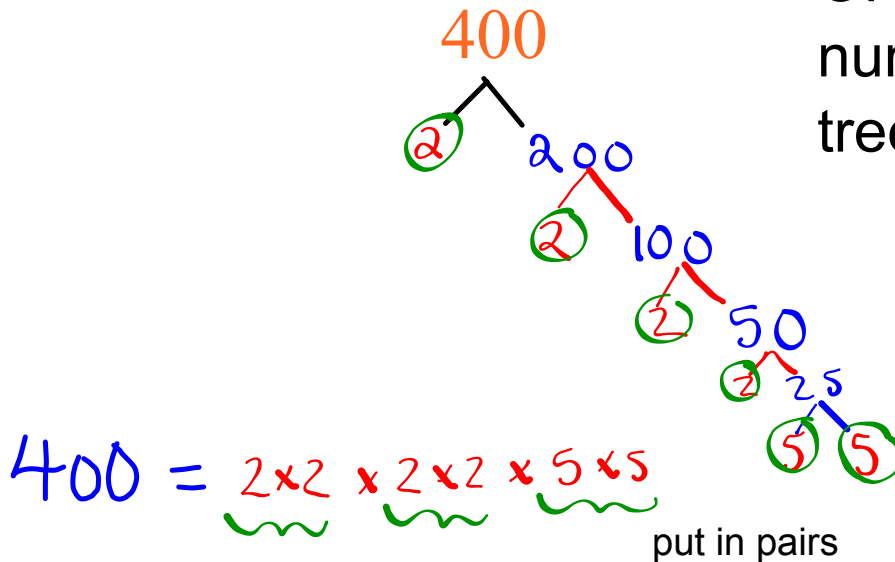
2, 3, 5, 7, 11, 13, 17, 19, 23, 29,...

Finding the square root using prime factorization

2, 3, 5, 7, 11, 13, 17, 19, 23, ...
 To find the square root of number using prime factorization, you first have to write the number as a product of prime numbers. You can use a factor tree to write a number as a product of prime numbers.

Step 1) Find the prime Factors of 400

ONLY prime numbers in tree



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

Step 2) Find the square root by putting the factors in pairs, under a $\sqrt{\quad}$, then calculate.

$$\sqrt{400} = \sqrt{(2 \times 2) \times (2 \times 2) \times (5 \times 5)} \quad \text{pairs}$$

$$\sqrt{400} = \sqrt{(2 \times 2)} \times \sqrt{(2 \times 2)} \times \sqrt{(5 \times 5)} \quad \text{separate}$$

$$\sqrt{400} = 2 \times 2 \times 5$$

calculate the $\sqrt{\quad}$ of each pair remember the $\sqrt{2 \times 2} = \sqrt{4} = 2$

$$\sqrt{400} = 20$$

Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19, 23, 29

Now find the $\sqrt{324}$, using each method below:

- (a) product of perfect squares
- (b) prime factorization
- (c) Factors

Solutions

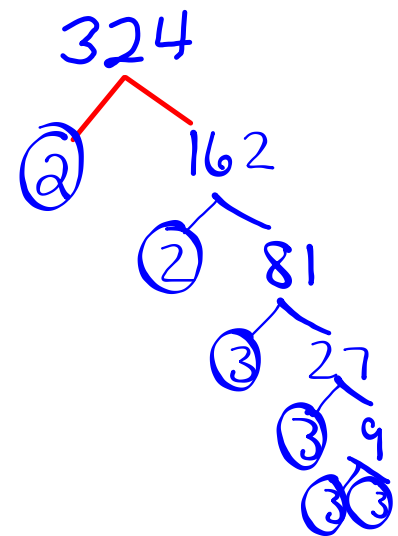
Perfect Squares	
1	4
9	16
25	36
49	64
81	100
121	144
169	196
225	

a) product of perfect squares *yesterday*

$$\begin{aligned} \sqrt{324} &= \sqrt{81 \times 4} \quad \textcircled{1} \\ &= \sqrt{81} \times \sqrt{4} \\ &= 9 \times 2 \quad \textcircled{1} \\ &= 18 \quad \textcircled{1} \end{aligned} \quad \left. \begin{aligned} &\sqrt{36 \times 9} \\ &= \sqrt{36} \times \sqrt{9} \\ &= 6 \times 3 \\ &= 18 \end{aligned} \right\}$$

b) prime factorization *today*

$$\begin{aligned} \sqrt{324} &= \sqrt{2 \times 2 \times 3 \times 3 \times 3 \times 3} \\ &= \sqrt{2 \times 2} \times \sqrt{3 \times 3} \times \sqrt{3 \times 3} \\ &= 2 \times 3 \times 3 \\ &= 18 \end{aligned}$$



c) Factors

- 324
- 1 x 324
 - 2 x 162
 - 3 x 108
 - 4 x 81
 - 6 x 54
 - 9 x 36
 - 12 x 27
 - 18 x 18

15 factors
56 perfect square

Homework

Prime Numbers:

2,3,5,7,11,13,17,19,23,29,31,...

Perfect squares:

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

similar to

Quiz

Tomorrow

- 1) Use product of perfect squares to find the square root of the following:
(a) 1296

.

- 2) Use product of PRIMES to find the square root of the following: (Factor Tree)
(a) 2304

- 3) Square 25 (SHOW WORK YOU DO ON CALCULATOR)

- 4) Find the square root of 256 (SHOW WORK YOU DO ON CALCULATOR)

Quiz Tomorrow Homework (Grade 8)

2. Find the square root of the following, using prime factorization:

(a) $\sqrt{576}$

(b) $\sqrt{784}$

(c) $\sqrt{2025}$

(d) $\sqrt{2304}$

(d) 1089

(e) 576 (

f) 11 025

need more



Homework (Grade 8)

Gr. 8 you try
more practice

HW circled

1. Use the product of perfect squares to find the following square roots:

(a) $\sqrt{5929}$

(b) $\sqrt{576}$

(c) $\sqrt{7056}$

2. Find the square root of the following, using prime factorizaion:

(a) $\sqrt{1444}$

(b) $\sqrt{784}$

(c) $\sqrt{2025}$

(d) $\sqrt{2304}$

Prime Numbers:

2,3,5,7,11,13,17,19,23,29,31,...

Perfect squares:

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

Attachments

Grade 8 Math Homework Oct. 29, 2014.docx