

Warm Up Grade 8

Before the quiz



x^y y^x $\square^{\square}$

Power	Base	Exponent	Expanded form	Standard form
7^6	7	6	7·7·7·7·7·7	117649

Find the square of 81 $\boxed{x^2}$

81^2

6561

Find the square root of 961 $\sqrt{\ }$

$\sqrt{961} = 31$

Use prime factorization to find the square root of 4356 (tree)

Prime 2, 3, 5, 7, 11, 13, ...

$\sqrt{4356}$

$= \sqrt{(2\cdot2)\cdot(3\cdot3)\cdot(11\cdot11)}$

$= \sqrt{2\cdot2} \cdot \sqrt{3\cdot3} \times \sqrt{11\cdot11}$

$= 2 \times 3 \times 11$

$= 66$

Non-Calculator

4356
- ② 2178
  - ② 1089
    - ③ 363
      - ③ 121
        - 11
        - 11

a) $7^2 = 49$ b) $(\sqrt{19})^2 = 19$ c) $\sqrt{121} = 11$

$\sqrt{19 \times 19}$

19

$\sqrt{19} \times \sqrt{19}$

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Warm Up Grade 8



Find the square of 81

$81^2 = 6561$

means 81×81

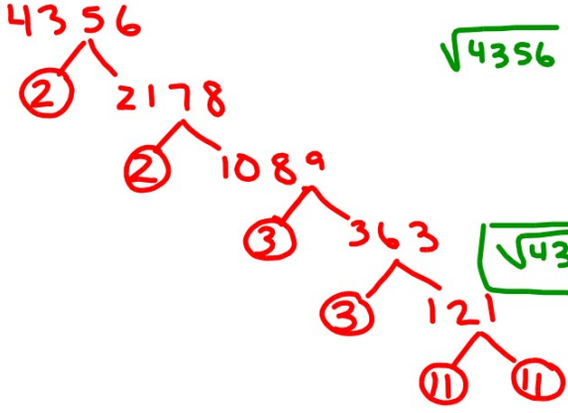


Find the square root of 961

$\sqrt{961} = 31$

means $A = 961$, sides 31 and 31

Use prime factorization to find the square root of 4356 (tree)



$\sqrt{4356} = \sqrt{(2\times2)\times(3\times3)\times(11\times11)}$

$= \sqrt{2\times2} \times \sqrt{3\times3} \times \sqrt{11\times11}$

$= 2 \times 3 \times 11$

$\sqrt{4356} = 66$

Non-Calculator

a) $7^2 =$ 49

b) $(\sqrt{19})^2 =$ 19

c) $\sqrt{121} =$ 11

HW Solutions

Ws 20

5. The area A of a square is given.
Find its side length.
Which side lengths are whole numbers?

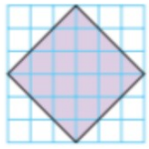
a) $A = 36\ \text{cm}^2$ **b)** $A = 49\ \text{m}^2$ **c)** $A = 95\ \text{cm}^2$ **d)** $A = 108\ \text{m}^2$

6. The side length s of a square is given.
Find its area.

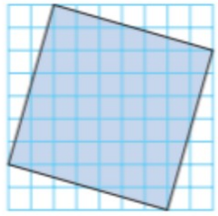
a) $s = 8\ \text{cm}$ **b)** $s = \sqrt{44}\ \text{cm}$ **c)** $s = \sqrt{7}\ \text{m}$ **d)** $s = 13\ \text{m}$

7. Copy each square on grid paper.
Find its area.
Then write the side length of the squa

a)



b)



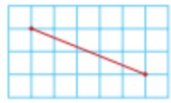
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10. Copy each line segment on grid paper. Draw a square on each line segment. Find the area of the square and the length of the line segment.

a) 

b) 

c) 

d) 

Estimating Square Roots Section 1.4

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	

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Estimating square roots of non-perfect number.



Estimate the square root of 85.

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

$\sqrt{85} \approx 9.3$

$\sqrt{81} = 9$ $\sqrt{100} = 10$

9.3 Then estimate the square root of 85

9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9



You Try

a) Estimate the $\sqrt{20}$

b) Estimate the $\sqrt{60}$

c) Estimate the $\sqrt{108}$

d) Estimate the $\sqrt{45}$

a) $\sqrt{20}$ → $\sqrt{16}$ → 4, $\sqrt{25}$ → 5

≈ 4.3

b) $\sqrt{60}$ → $\sqrt{49}$ → 7, $\sqrt{64}$ → 8

7.1, 7.2, 7.3 ..... 7.8, 7.9,

$\approx \boxed{7.8}$

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