

HW: Worksheet

**Warm up:**

Write the following numbers as fractions.

Reduce if possible.

1) 0.3  $\frac{3}{10}$

5) 0  $\frac{0}{1}$

2) 4.52  $4\frac{52}{100}$   $4\frac{13}{25}$

6)  $0.\overline{77}$   $\frac{7}{9}$

3) 8  $\frac{8}{1}$

7)  $3.1\overline{717}$   $3\frac{17}{99}$

4) -4  $-\frac{4}{1}$

8)  $\sqrt{81}$   $\frac{9}{1}$

$$\frac{4}{0}$$

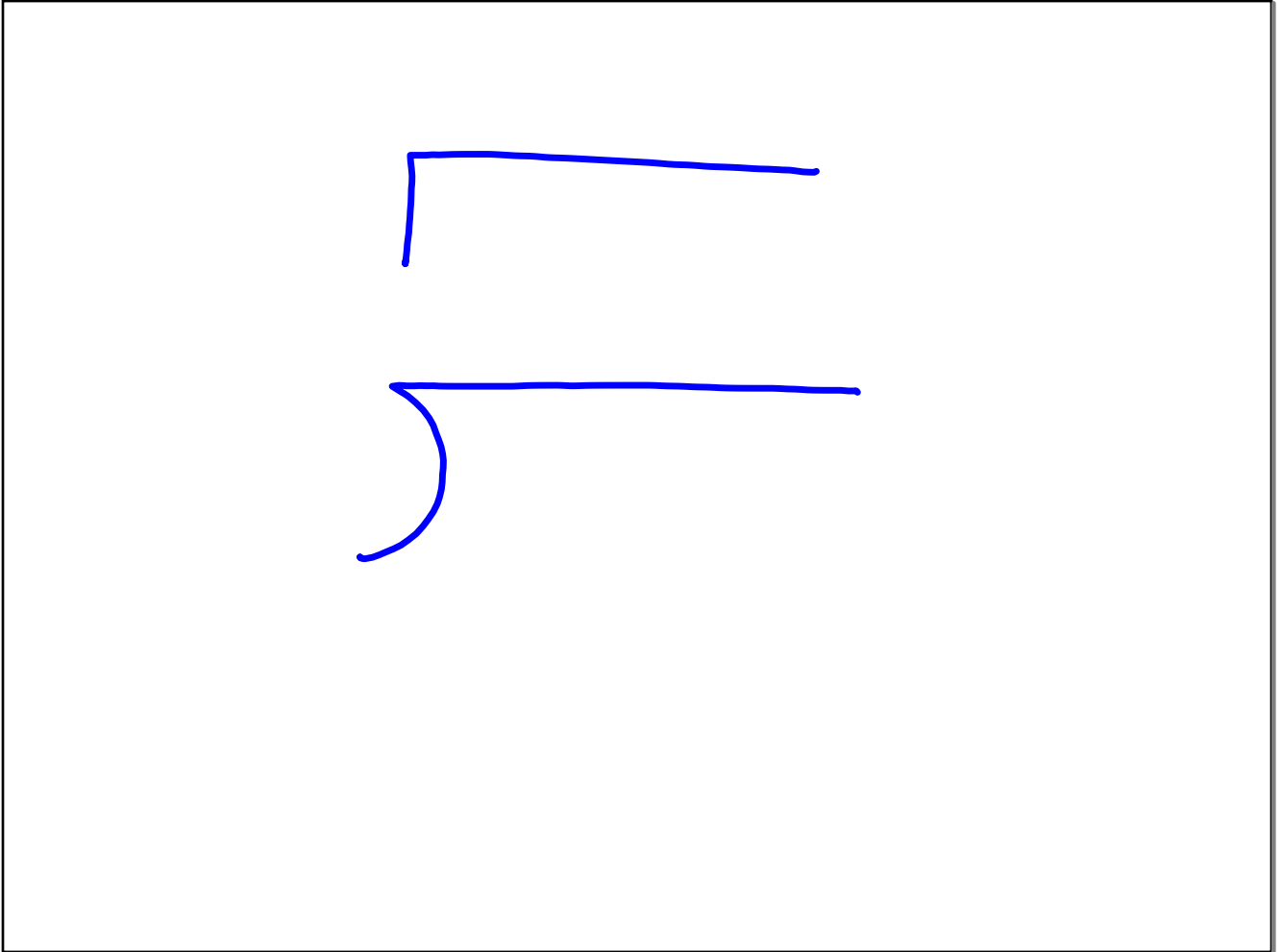
## Estimating Square Roots

$$\sqrt{24} \approx 5$$

$$2\sqrt{8}$$

$$\sqrt{86} \approx 9$$

$$\sqrt{59} \approx 8$$



$$\sqrt[3]{8} = 2$$

$$3\sqrt{25} = 15$$

# Two Square Roots

Find the two square roots of 25.

5 and -5

Find the two square roots of 81.

$\pm 9$

Estimate to the nearest integer.

$$1) \sqrt{18} \quad 2) -\sqrt{33} \quad 3) \sqrt{68}$$

4

-6

8

$$4) \sqrt{97} \quad 5) \sqrt{141} \quad 6) -\sqrt{50}$$

10

12

-7

Find the two square roots of each number.

$$7) 9$$

 $\pm 3$ 

$$8) 64$$

 $\pm 8$ 

$$9) \frac{9}{49}$$

 $\pm \frac{3}{7}$

$$\frac{4}{-5} = -\frac{4}{5}$$

$$\frac{-3}{8} = -\frac{3}{8}$$

$$\frac{-5}{-7} = \frac{5}{7}$$



$$\left(\frac{2}{3}\right)^3 = \frac{8}{27}$$

# HW Solutions

# Finding Square Roots Without a Calculator

1.41

$$\sqrt{1} = 1$$

$$\sqrt{4} = 2$$

$\sqrt{2}$

$\begin{array}{r} 1.3 \\ \times 1.3 \\ \hline 39 \\ 130 \\ \hline 1.69 \end{array}$	$\begin{array}{r} 1.4 \\ \times 1.4 \\ \hline 56 \\ 140 \\ \hline 1.96 \end{array}$	$\begin{array}{r} 1.5 \\ \times 1.5 \\ \hline 75 \\ 150 \\ \hline 2.25 \end{array}$
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$\begin{array}{r} 1.41 \\ \times 1.41 \\ \hline 141 \\ 5640 \\ 14100 \\ \hline 1.9881 \end{array}$	$\begin{array}{r} 1.42 \\ \times 1.42 \\ \hline 284 \\ 5680 \\ 14200 \\ \hline 2.0164 \end{array}$
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0.04  $\nearrow$  2  $\nearrow$  0.25

2	2	2
	1.415	2
	$\times 1.415$	
	$\hline$	
2	7075	
1	14150	
5	66000	
1	415000	
$\hline$		
2.00	2225	

$$\sqrt{18}$$

$\sqrt{16}$  (with arrow pointing to 4) and  $\sqrt{25}$  (with arrow pointing to 5) are written above the radical.

4.24

$$\begin{array}{r} 4.2 \\ \times 4.2 \\ \hline 184 \\ 1680 \\ \hline 1764 \end{array}$$

$$\begin{array}{r} 4.3 \\ \times 4.3 \\ \hline 129 \\ 1730 \\ \hline 1849 \end{array}$$

$$\begin{array}{r} 4.24 \\ \times 4.24 \\ \hline 1696 \\ 18480 \\ 169600 \\ \hline 179776 \end{array}$$

$$\begin{array}{r} 4.25 \\ \times 4.25 \\ \hline 2125 \\ 18500 \\ 170000 \\ \hline 180625 \end{array}$$

0.36 ← 18 → 0.49

$$\begin{array}{r} 4.245 \\ \times 4.245 \\ \hline 21225 \\ 2169800 \\ 2849000 \\ 16980000 \\ \hline 18020025 \end{array}$$

$\sqrt{67} \approx 8.19$

$\sqrt{64} = 8$  (indicated by a green arrow pointing to the digit 8 in the root)

$\sqrt{81} = 9$  (indicated by a green arrow pointing to the digit 9 in the root)

$\sqrt{67} \approx 8.19$  (circled in green)

**Long Division 1:**

8.2	8.1	8.17	8.18	8.19
x 8.2	x 8.1	x 8.17	x 8.18	x 8.19
164	181	5719	6544	7371
6560	6480	653600	654400	655200
67.24	65.61	66.7489	66.9124	67.0761

0.24 (indicated by a green arrow pointing to the remainder)

**Long Division 2:**

8.185	x 8.185
48925	
654800	
818500	
65480000	
66.999225	

⑤  $\frac{7}{16}$

$$\begin{array}{r} 4 \\ \times 16 \\ \hline 112 \end{array}$$

0.4375

$$\begin{array}{r} 16 \overline{) 7.0000} \\ \underline{-64} \phantom{00} \\ 60 \phantom{00} \\ \underline{-48} \phantom{00} \\ 120 \phantom{00} \\ \underline{-112} \phantom{00} \\ 800 \\ \underline{-800} \\ 000 \end{array}$$

(13)

$$3\frac{3}{4} \cdot 6$$

$$\frac{15}{4} \cdot \frac{6}{1} = \frac{45}{2} = 22\frac{1}{2} \text{ c}$$

Evaluate. Round to the nearest hundredth.

1)  $\sqrt{35}$

2)  $\sqrt{5}$

3)  $\sqrt{80}$

4)  $\sqrt{29}$



$$1) \sqrt{35}$$

$$\begin{array}{r} 5.9 \\ \times 5.9 \\ \hline 34.81 \end{array}$$

0.17 ↗ 35 ↗ 1

$$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$$

$$\begin{array}{r} 5.91 \\ \times 5.91 \\ \hline 34.9281 \end{array}$$

$$\begin{array}{r} 5.92 \\ \times 5.92 \\ \hline 35.0464 \end{array}$$

$$\begin{array}{r} 5.915 \\ \times 5.915 \\ \hline 34.987225 \end{array}$$

5.92

$\sqrt{4}$        $\sqrt{9}$       2.24

2)  $\sqrt{5}$

$\begin{array}{r} 2.2 \\ \times 2.2 \\ \hline 4.84 \end{array}$	$\begin{array}{r} 2.3 \\ \times 2.3 \\ \hline 5.29 \end{array}$	$\begin{array}{r} 2.24 \\ \times 2.24 \\ \hline 5.0176 \end{array}$	$\begin{array}{r} 2.23 \\ \times 2.23 \\ \hline 4.9729 \end{array}$
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$\sqrt{5}$        $\sqrt{29}$

$$\begin{array}{r} 2.235 \\ \times 2.235 \\ \hline 4.995225 \end{array}$$

$\sqrt{64}$                        $\sqrt{81}$                       8.94  
 3)  $\sqrt{80}$

$$\begin{array}{r} 8.9 \\ \times 8.9 \\ \hline 79.21 \\ \sqrt{\phantom{0.79}} 80 \end{array}$$

$$\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \\ \uparrow \end{array}$$

$$\begin{array}{r} 8.94 \\ \times 8.94 \\ \hline 79.9236 \end{array}$$

$$\begin{array}{r} 8.95 \\ \times 8.95 \\ \hline 80.1025 \end{array}$$

$$\begin{array}{r} 8.945 \\ \times 8.945 \\ \hline 80.013025 \end{array}$$

$$4) \sqrt{29}$$

