

Simplifying Radicals

Date _____ Period _____

Simplify.

1) $\sqrt{100}$

$$\sqrt{10 \cdot 10}$$

$$= 10$$

2) $\sqrt{75}$

$$\sqrt{5 \cdot 15}$$

$$\sqrt{5 \cdot 3 \cdot 3}$$

$$5\sqrt{3}$$

$$\sqrt{75}$$

$$\sqrt{3 \cdot 25}$$

$$\sqrt{3 \cdot (5 \cdot 5)}$$

$$5\sqrt{3}$$

3) $\sqrt{48}$

$$\sqrt{6 \cdot 8}$$

$$\sqrt{3 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$$

$$2 \cdot 2 \sqrt{3}$$

$$4\sqrt{3}$$

4) $\sqrt{12}$

$$\sqrt{2 \cdot 6}$$

$$\sqrt{2 \cdot 2 \cdot 3}$$

$$2\sqrt{3}$$

5) $\sqrt{20}$

$$\sqrt{2 \cdot 10}$$

$$\sqrt{2 \cdot 2 \cdot 5}$$

$$2\sqrt{5}$$

6) $\sqrt{36}$

$$\sqrt{6 \cdot 6}$$

$$= 6$$

$$\sqrt{2 \cdot 3 \cdot 2 \cdot 3}$$

$$3 \cdot 2$$

$$= 6$$

7) $\sqrt{16}$

$$\sqrt{8 \cdot 2}$$

$$\sqrt{2 \cdot 2 \cdot 2 \cdot 2}$$

$$2 \cdot 2$$

$$= 4$$

$$\sqrt{4 \cdot 4}$$

$$= 4$$

$$\sqrt{2 \cdot 2 \cdot 2 \cdot 2}$$

$$2 \cdot 2 = 4$$

8) $\sqrt{125}$

$$\sqrt{5 \cdot 25}$$

$$\sqrt{5 \cdot 5 \cdot 5}$$

$$5\sqrt{5}$$

9) $5\sqrt{45}$

$$5\sqrt{5 \cdot 9}$$

$$5\sqrt{5 \cdot (3 \cdot 3)}$$

$$5 \cdot 3 \sqrt{5}$$

$$15\sqrt{5}$$

10) $4\sqrt{45}$

$$4\sqrt{5 \cdot 9}$$

$$4\sqrt{5 \cdot (3 \cdot 3)}$$

$$4 \cdot 3 \sqrt{5}$$

$$12\sqrt{5}$$

$2\sqrt{3}$	$3\sqrt{2}$	$2\sqrt{3}$	$3\sqrt{7}$	6	$2\sqrt{2}$	$2\sqrt{11}$	$2\sqrt{6}$	$2\sqrt{11}$	$2\sqrt{6}$
$2\sqrt{7}$	$2\sqrt{10}$	$2\sqrt{5}$	$2\sqrt{2}$	$2\sqrt{7}$	$4\sqrt{2}$	8	4	$4\sqrt{3}$	$2\sqrt{7}$
$2\sqrt{3}$	2	$2\sqrt{10}$	4	$2\sqrt{2}$	6	$2\sqrt{5}$	$4\sqrt{3}$	2	$2\sqrt{6}$
$2\sqrt{7}$	$2\sqrt{11}$	2	$2\sqrt{10}$	4	$2\sqrt{5}$	$4\sqrt{3}$	2	$3\sqrt{2}$	$2\sqrt{7}$
$2\sqrt{11}$	$3\sqrt{2}$	$3\sqrt{5}$	2	$2\sqrt{10}$	$4\sqrt{3}$	2	$3\sqrt{7}$	$2\sqrt{11}$	$3\sqrt{2}$
$3\sqrt{5}$	$3\sqrt{2}$	$2\sqrt{11}$	2	$2\sqrt{6}$	$2\sqrt{3}$	2	$3\sqrt{2}$	$3\sqrt{5}$	$3\sqrt{7}$
6	$2\sqrt{11}$	2	$2\sqrt{6}$	4	$2\sqrt{5}$	$2\sqrt{3}$	2	$3\sqrt{2}$	6
$4\sqrt{3}$	2	$2\sqrt{6}$	4	$2\sqrt{7}$	$4\sqrt{2}$	4	$2\sqrt{3}$	2	$2\sqrt{10}$
6	$2\sqrt{6}$	4	$2\sqrt{7}$	$2\sqrt{2}$	6	$4\sqrt{2}$	4	$2\sqrt{3}$	6
$4\sqrt{3}$	$3\sqrt{2}$	$4\sqrt{3}$	$3\sqrt{7}$	$2\sqrt{7}$	$4\sqrt{2}$	$3\sqrt{5}$	$2\sqrt{10}$	$2\sqrt{11}$	$2\sqrt{10}$

Simplify.



$\sqrt{4}$



$\sqrt{16}$



$\sqrt{36}$

4



$\sqrt{8}$

5



$\sqrt{12}$

6



$\sqrt{18}$

$$\begin{aligned}
 &= \sqrt{9 \cdot 2} \\
 &= \sqrt{3 \cdot 3 \cdot 2} \\
 &= 3\sqrt{2}
 \end{aligned}$$

7



$\sqrt{20}$

8



$\sqrt{24}$

9



$\sqrt{28}$

10



$\sqrt{32}$

11



$\sqrt{40}$

12



$\sqrt{44}$

13



$\sqrt{45}$

14



$\sqrt{48}$

15



$\sqrt{63}$