

Warm Up Quiz

a) $\sqrt{25}$ b) $\sqrt[3]{8}$ *entire radical*

c) $\sqrt[3]{27}$ d) $2\sqrt{3}$

e) $2\sqrt[3]{3}$ *Entire radical*

Oct 3-9:02 AM

$\sqrt{20}$ symbol (square root)

2^2 squared

$\sqrt[3]{8}$ symbol cubed root

2^3 cubed

Simplify $\sqrt{20}$ Entire Radical

$= \sqrt{4 \times 5}$

$= \sqrt{4} \cdot \sqrt{5}$ Mixed Radical

$= 2\sqrt{5}$

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$\sqrt{20} \rightarrow \sqrt{4} \cdot \sqrt{5} = 2\sqrt{5}$

Entire R. Mixed R.

$\sqrt{2^2 \cdot 5} = \sqrt{4 \cdot 5} = \sqrt{20}$

$\sqrt{9 \cdot 6} = \sqrt{9} \cdot \sqrt{6} = 3\sqrt{6}$

$\sqrt{54} \rightarrow$ Mixed R.

$\sqrt[3]{27} = 3$

$2^2 = 4$ $3 \cdot 3 \cdot 3 = 3^3$

$3^2 = 9$ $4^2 = 16$

$4^2 = 16$ $5^2 = 25$

$\sqrt[3]{24} = \sqrt[3]{8 \cdot 3} = 2\sqrt[3]{3}$

$\sqrt[3]{24} = \sqrt[3]{2^3 \cdot 3} = 2\sqrt[3]{3}$

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$\sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$

$\sqrt{75} = \sqrt{25 \times 3} = 5\sqrt{3}$

Simplify

$\sqrt{18} = \sqrt{9 \cdot 2} = 3\sqrt{2}$

$\sqrt{45} = \sqrt{9 \cdot 5} = 3\sqrt{5}$

$\sqrt{48} = \sqrt{16 \cdot 3} = 4\sqrt{3}$

$\sqrt{12} = \sqrt{4 \cdot 3} = 2\sqrt{3}$

$\sqrt{12} = \sqrt{4 \cdot 3} = 2 \cdot \sqrt{3}$

$2 \cdot \sqrt{12} = 2 \cdot 2\sqrt{3} = 4\sqrt{3}$

$\sqrt[3]{32} = \sqrt[3]{8 \cdot 4} = 2\sqrt[3]{4}$

$\sqrt[3]{54} = \sqrt[3]{27 \cdot 2} = 3\sqrt[3]{2}$

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$\sqrt{6} \cdot \sqrt{4}$ or $\sqrt{6 \cdot 4} = \sqrt{24} = 2\sqrt{6}$ MIXED R.

$(3\sqrt{2}) \cdot (-5\sqrt{3}) = -15\sqrt{6}$

5) $-4\sqrt{20} = -4\sqrt{4 \cdot 5} = -4 \cdot 2\sqrt{5} = -8\sqrt{5}$

$\sqrt{20} = \sqrt{4 \cdot 5} = 2\sqrt{5}$

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6) $-6\sqrt{27} = -6 \times \sqrt{9 \cdot 3} = -6 \cdot 3\sqrt{3} = -18\sqrt{3}$

$\sqrt{27} = \sqrt{9 \cdot 3} = 3\sqrt{3}$

Oct 3-10:40 AM

$$\begin{aligned}
 7) & -\sqrt{32} \\
 & \text{or} \\
 & -1\sqrt{32} \\
 & -1 \cdot \sqrt{16} \cdot \sqrt{2} \\
 & -1 \cdot 4 \cdot \sqrt{2} \\
 & -4\sqrt{2}
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{32} \\
 & \swarrow \searrow \\
 & \sqrt{16} \cdot \sqrt{2} \\
 & 4\sqrt{2}
 \end{aligned}$$

Oct 3-10:42 AM

$$\begin{aligned}
 8) & 3\sqrt{108} \\
 & 3\sqrt{36 \cdot 3} \\
 & 3 \cdot \sqrt{36} \cdot \sqrt{3} \\
 & 3 \cdot 6 \cdot \sqrt{3} \\
 & 18\sqrt{3}
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{108} \\
 & \sqrt{36 \cdot 3} \\
 & 6\sqrt{3}
 \end{aligned}$$

Oct 3-10:44 AM

$$\begin{aligned}
 12) & \sqrt{10} \cdot \sqrt{15} \\
 & = \sqrt{150} \\
 & \swarrow \searrow \\
 & \sqrt{25} \cdot \sqrt{6} \\
 & 5\sqrt{6}
 \end{aligned}$$

Oct 3-10:46 AM

$$\begin{aligned}
 14) & \sqrt{8} \cdot \sqrt{8} \\
 & \sqrt{64} \\
 & = 8
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{6} \cdot \sqrt{6} \\
 & \sqrt{36} \\
 & = 6
 \end{aligned}$$

$$\begin{aligned}
 & (\sqrt{8})^2 \\
 & = 8
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{9} \cdot \sqrt{9} \\
 & \sqrt{81} \\
 & = 9
 \end{aligned}$$

Oct 3-10:47 AM

Rationalizing the Denominator

$\frac{\text{numerator}}{\text{denominator}}$ or $\frac{1}{4}$

$\frac{4}{\sqrt{6}} \times \frac{\sqrt{6}}{\sqrt{6}} = \frac{4\sqrt{6}}{\sqrt{36}}$
 or $= \frac{4\sqrt{6}}{6}$

Step 1: Multiply the numerator and denominator by a radical that will get rid of the radical in the denominator.
 Step 2: Make sure all radicals are simplified.
 Step 3: Simplify the fraction if needed.

Step 3: $\frac{2\sqrt{6}}{3}$

Oct 3-10:53 AM

$$-\frac{2}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{-2\sqrt{3}}{\sqrt{9}} = \frac{-2\sqrt{3}}{3}$$

↑ work on cleaning the radical

$$9) \frac{5\sqrt{4}}{\sqrt{3}} = \frac{5 \cdot 2}{\sqrt{3}} = \frac{10}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{10\sqrt{3}}{3}$$

$$7) \frac{4\sqrt{2}}{3\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{4\sqrt{2 \cdot 3}}{3\sqrt{3 \cdot 3}} = \frac{4\sqrt{6}}{3\sqrt{9}}$$

$$\frac{4\sqrt{6}}{3 \cdot 3} = \frac{4\sqrt{6}}{9}$$

Oct 3-11:02 AM

$$9) \frac{\sqrt{5}}{3\sqrt{15}} \times \frac{\sqrt{15}}{\sqrt{15}} = \frac{\sqrt{75}}{3\sqrt{225}}$$

$$\frac{\sqrt{75}}{3 \cdot 15} = \frac{\sqrt{75}}{45} = \frac{\sqrt{25 \cdot 3}}{45} = \frac{5\sqrt{3}}{45}$$

Oct 3-11:39 AM

$$18) -2\sqrt{5} \cdot -2\sqrt{5} \quad \begin{matrix} ab \\ a \times b \end{matrix}$$

$$+4 \cdot \sqrt{25}$$

$$4 \cdot 5 = 20$$

$$\sqrt{\frac{2 \cdot 5}{2 \cdot 5}} = \sqrt{\frac{4 \cdot 5}{20}}$$

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