

DO NOW

Simplify: $\sqrt{20}$

$$\frac{\sqrt{4}\sqrt{5}}{2\sqrt{5}}$$

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1.7 Rationalize Denominators

Recall: $\sqrt{45}$

$$\frac{\sqrt{9}\sqrt{5}}{3\sqrt{5}}$$

$$\frac{3\sqrt{50}}{3\sqrt{25}\sqrt{2}}$$

$$\frac{3(5)\sqrt{2}}{15\sqrt{2}}$$

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Rationalize the denominator:

* Never leave a radical in the denominator

* Multiply by $\frac{\sqrt{x}}{\sqrt{x}}$ where \sqrt{x} matches the radical in the denominator

Examples:

1. $\sqrt{\frac{2}{3}}$

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

$$\frac{\sqrt{6}}{3}$$

known $\frac{\sqrt{3}\sqrt{3}}{\sqrt{9}} = \frac{3}{3}$

2. $\frac{4}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$

$$\frac{4\sqrt{5}}{5}$$

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3. $\sqrt{\frac{9}{13}}$

$$\frac{\sqrt{9}}{\sqrt{13}}$$

$$\frac{3}{\sqrt{13}} \cdot \frac{\sqrt{13}}{\sqrt{13}}$$

$$\frac{3\sqrt{13}}{13}$$

4. $\sqrt{\frac{1}{7}}$

$$\frac{\sqrt{1}}{\sqrt{7}}$$

$$\frac{1}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}}$$

$$\frac{\sqrt{7}}{7}$$

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

$$\frac{15\sqrt{15}}{15}$$

$$\sqrt{15}$$

6. $\sqrt{\frac{5}{7}}$

$$\frac{\sqrt{5}}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}}$$

$$\frac{\sqrt{35}}{7}$$

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7. $\frac{10}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$

$$\frac{10\sqrt{5}}{5}$$

$$2\sqrt{5}$$

8. $\frac{3\sqrt{24}}{\sqrt{3}}$

$$3\sqrt{8}$$

$$3\sqrt{4}\sqrt{2}$$

$$3(2\sqrt{2})$$

$$6\sqrt{2}$$

9. $\frac{11}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}}$

$$\frac{11\sqrt{11}}{11}$$

$$\sqrt{11}$$

10. $\frac{7}{\sqrt{21}} \cdot \frac{\sqrt{21}}{\sqrt{21}}$

$$\frac{7\sqrt{21}}{21}$$

$$\frac{\sqrt{21}}{3}$$

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HOMework

Worksheet - HW 1.7 Rationalize Denoms

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