

# 11.7

## Multiplying, Dividing, and Simplifying Radicals

### Multiplying Radicals

1)  $5\sqrt{3} \cdot 8\sqrt{21}$

### Multiplying Radicals

2)  $3\sqrt{2} \cdot 4\sqrt{18}$

### Multiplying Radicals

3)  $\sqrt{\frac{10}{3}} \cdot \sqrt{\frac{27}{32}}$

## Multiplying Radicals

$$4) \sqrt{\frac{3}{7}} \cdot \sqrt{\frac{14}{27}}$$

## Multiplying Radicals

$$5) \sqrt{3\frac{3}{7}} \cdot \sqrt{2\frac{1}{3}}$$

## Dividing Radicals

$$6) \frac{3}{\sqrt{5}}$$

## Dividing Radicals

$$7) \sqrt{\frac{7}{8}}$$

## Dividing Radicals

$$8) \frac{9\sqrt{3}}{\sqrt{24}}$$

## Dividing Radicals

$$9) \frac{\sqrt{75}}{2\sqrt{18}}$$

## Dividing Radicals

$$10) \sqrt{2\frac{2}{3}} \cdot \sqrt{1\frac{1}{4}}$$

## Simplifying Summary

- Make sure you cannot divide the "radicand" by a perfect square (except for 1)
- No radicals can be in the denominator

## With variables

Simplify. Assume that all variables represent positive numbers (in other words...don't use absolute values signs.)

$$11) 3\sqrt{ab^2}(-2\sqrt{a})$$

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$$12) \sqrt{r}(5 - \sqrt{r})$$

## With variables

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$$13) \sqrt{3a}(\sqrt{12a} - 2\sqrt{8a^2})$$

## Practice

$$a) 7\sqrt{2} \cdot 5\sqrt{2}$$

$$e) \frac{3\sqrt{20}}{\sqrt{15}}$$

$$b) 4\sqrt{150}$$

$$c) \sqrt{3\frac{1}{3}} \cdot \sqrt{4\frac{4}{5}}$$

$$d) \sqrt{\frac{6}{5}} \cdot \sqrt{\frac{50}{9}}$$