

# **Rationalizing Denominators and More Simplifying Radicals**

**Sections 10.1, 10.4 and 10.5**

**Course Learning Objective:**

**Demonstrate appropriate manipulation of expressions with rational exponents and radicals.**

**Weekly Learning Objectives:**

- 1) Rationalize denominators**
- 2) Rationalize denominators having two terms.**
- 3) Multiply and divide radical expressions.**
- 4) Use the distance and midpoint formulas.**

## Rationalizing Denominators and More Simplifying of Radicals

$$\frac{12}{\sqrt{6}} =$$

$$\frac{-5}{\sqrt{24}} =$$

$$\sqrt{\frac{10}{3}} =$$

$$-\sqrt{\frac{13}{75}} =$$

$$\sqrt{\frac{98t^3}{t^5}} =$$

$$\sqrt[3]{\frac{1}{5}} =$$

$$\sqrt[4]{\frac{1}{5}} =$$

$$\sqrt[4]{\frac{3}{4}} =$$

$$\frac{1}{4-\sqrt{3}} =$$

$$\frac{\sqrt{3}}{\sqrt{2+\sqrt{3}}} =$$

$$\frac{\sqrt{18}}{\sqrt{2}-1} =$$

$$\sqrt{\frac{19}{20}} \cdot \sqrt{\frac{20}{3}} =$$

$$\sqrt[3]{\frac{3}{25x^2}} =$$

$$3\sqrt{7}(2\sqrt{7} + 4\sqrt{5}) =$$

$$(4\sqrt{5} - 2)(2\sqrt{5} - 4) =$$

$$(3 - \sqrt{5})(3 + \sqrt{5}) =$$

$$(\sqrt{4p} - \sqrt{3k})(\sqrt{4p} + \sqrt{3k}) =$$

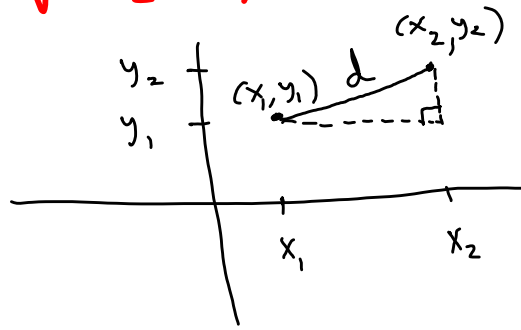
$$\frac{6\sqrt{11} - 12}{6}$$

$$\frac{9 - \sqrt{72}}{12}$$

$$\frac{4\sqrt{6} + 24}{20}$$

**Distance Formula:** The distance between the two points  $(x_1, y_1)$  &  $(x_2, y_2)$  is given by:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



Find the distance between  $(-1, 3)$  and  $(-2, 6)$ . Give the answer in exact form and as a decimal approximation.

**Midpoint Formula:** The midpoint between  $(x_1, y_1)$  &  $(x_2, y_2)$  is given by:

$$M = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Find the midpoint between  $(-2, 5)$  and  $(4, -6)$ .

