

# M10 - 4.1 - Entire to Mixed Radicals HW

*Simplify*

$$\sqrt[2]{12} =$$

$$\sqrt[2]{18} =$$

$$\sqrt[2]{45} =$$

$$\sqrt[2]{50} =$$

$$\sqrt[2]{20x^2} =$$

$$\sqrt[2]{63}$$

$$\sqrt[2]{24} =$$

$$\sqrt[2]{54} =$$

$$\sqrt[2]{40} =$$

$$\sqrt[2]{27x^3} =$$

$$\sqrt[2]{8} =$$

$$\sqrt[2]{125x^5} =$$

$$\sqrt[2]{32} =$$

$$\sqrt[2]{243} =$$

$$\sqrt[2]{30125} =$$

$$\sqrt[2]{72y^3} =$$

$$\sqrt[2]{108} =$$

$$\sqrt[2]{500} =$$

## M10 - 4.1 - Cube Entire to Mixed Radicals HW

*Simplify*

$$\sqrt[3]{24} =$$

$$\sqrt[3]{54} =$$

$$\sqrt[3]{250} =$$

$$\sqrt[3]{-40} =$$

$$\sqrt[3]{189} =$$

$$\sqrt[3]{686} =$$

$$\sqrt[3]{48} =$$

$$\sqrt[3]{162} =$$

$$\sqrt[3]{112} =$$

$$\sqrt[3]{16} =$$

$$\sqrt[3]{-81} =$$

$$\sqrt[3]{625} =$$

$$\sqrt[3]{128} =$$

$$\sqrt[3]{2187} =$$

$$\sqrt[3]{-50625} =$$

## M10 - 4.2 - Mixed to Entire Radicals HW

*Simplify*

$$2^2\sqrt{3} =$$

$$3^2\sqrt{2} =$$

$$5^2\sqrt{2} =$$

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

$$2^2\sqrt{7} =$$

$$7^2\sqrt{2}$$

$$10^2\sqrt{3} =$$

$$3^2\sqrt{7} =$$

$$11^2\sqrt{5} =$$

$$4^2\sqrt{7} =$$

$$7^2\sqrt{6} =$$

$$8^2\sqrt{5} =$$

$$4^2\sqrt{11} =$$

$$5^2\sqrt{11} =$$

$$1^2\sqrt{30125} =$$

$$2^2\sqrt{99} =$$

$$5^2\sqrt{1000} =$$

$$7^2\sqrt{4} =$$

## M10 - 4.2 - Cube Root Mixed to Entire Radicals HW

*Simplify*

$$2\sqrt[3]{2} =$$

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

$$7\sqrt[3]{3} =$$

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

$$7\sqrt[3]{6} =$$

$$1\sqrt[3]{686} =$$

$$2\sqrt[3]{48} =$$

$$-3\sqrt[3]{12} =$$

$$5\sqrt[3]{12} =$$

$$11\sqrt[3]{6} =$$

$$2\sqrt[3]{11} =$$

$$-5\sqrt[3]{6} =$$

$$2\sqrt[3]{18} =$$

$$3\sqrt[3]{2187} =$$

$$10\sqrt[3]{50625} =$$

## M10 - 4.3 - Mult/Add Div/Divide Exponent Laws HW

Write each product of powers as a single power.

$$x^2 \times x^2 = x^{2+2} = x^4$$

$$y^3 \times y^4 =$$

$$3^2 \times 3^2 =$$

$$z^3 \times z^2 =$$

$$m^3 \times m^4 =$$

$$n^4 \times n^2 =$$

$$2^2 \times x^3 =$$

$$(2x)^2 \times (2x)^3 =$$

$$(3y)^2 \times (2y)^2 =$$

Write each quotient of repeated multiplication division statement in fraction form then simplify as a single power.

$$x^4 \div x^2 = \frac{\cancel{x \times x} \times x \times x}{\cancel{x \times x}} = x^2$$

$$x^3 \div x^2 =$$

$$y^2 \div y^2 =$$

$$z^5 \div z^2 =$$

$$x^3 \div x^3 =$$

$$x^2 \div x^3 =$$

$$(3x)^5 \div (3x)^3 =$$

$$(2x)^6 \div (2x)^3 =$$

$$(2x)^8 \div (2x)^7 =$$

Write each quotient of powers as a single power.

$$x^4 \div x^2 = x^{4-2} = x^2$$

$$y^4 \div y^2 =$$

$$m^4 \div m^3 =$$

$$g^7 \div g^4 =$$

$$(-2x)^5 \div (-2x)^3 =$$

$$(-4x)^8 \div (-4x)^7 =$$

Write each quotient of powers as a single power.

$$\frac{x^5}{x^2} =$$

$$\frac{y^2}{y} =$$

$$\frac{(-3x)^4}{(-3x)^2} =$$

$$\frac{m^5}{m^2} =$$

$$\frac{b^3}{b^2} =$$

$$\frac{(-7x)^5}{(-7x)^2} =$$

## M10 - 4.3 - Distribution Exponent Laws HW

Write the following as a single power.

$$(x^3)^2 = x^{3 \times 2} = x^6$$

$$(x^2)^3 =$$

$$(y^3)^2 =$$

$$(2z^2)^5 =$$

$$(3x^3)^4 =$$

$$(x^{-1})^2 =$$

Write as a multiplication of two powers.

$$[7 \times x]^2 = 7^2 x^2 = 49x^2$$

$$[5 \times y]^2 =$$

$$[m \times n]^2$$

$$[7 \times b]^2 =$$

$$[2x \times 3x]^2 =$$

$$[3x \times 2y]^2$$

$$[7x]^2 =$$

$$[3xy]^2$$

$$[5x^3]^2 =$$

Distribute the power.

$$\left(\frac{x}{y}\right)^2 =$$

$$\left(\frac{3y}{2x}\right)^2$$

$$\left(\frac{180x^2}{6x}\right)^2 =$$

$$\left(\frac{24x^5}{2x^4}\right)^2 =$$

$$\left(\frac{5xy}{35y^2}\right)^2 =$$

$$\left(\frac{4x}{4x}\right)^2 =$$

# M10 - 4.4 - Negative Exponents HW

Write with positive exponents

$$x^{-3} = \frac{1}{x^3}$$

$$x^{-4} =$$

$$\frac{1}{x^{-3}} =$$

$$\frac{1}{x^{-4}} =$$

$$x^{-2} =$$

$$x^{-3} =$$

$$x^{-2} =$$

$$x^{-2} =$$

$$2x^{-2} =$$

$$2^{-3}x =$$

$$2^{-3}x^{-2} =$$

$$\frac{1}{2x^{-2}} =$$

$$\frac{1}{2^{-3}x} =$$

$$\frac{1}{2^{-3}x^{-2}} =$$

$$\frac{5}{2x^{-2}} =$$

$$\frac{5}{2^{-3}x^{-2}} =$$

$$\frac{x^2}{y^{-3}} =$$

$$\frac{x^{-2}}{y^{-3}} =$$

$$\frac{4}{2x^{-2}} =$$

$$\frac{2}{4x^{-2}} =$$

Write with negative exponents

$$x^3 =$$

$$\frac{1}{x^{-3}} =$$

$$\frac{1}{2x^3} =$$

$$\frac{12}{6x^3} =$$

# M10 - 4.5 - Fraction Exponents HW

Change from radical/root form to exponential form.

$$\sqrt[5]{3^2} =$$

$$\sqrt[2]{3^5} =$$

$$\sqrt{5} =$$

$$\sqrt[3]{x^4} =$$

$$\sqrt[4]{(-7)^3} =$$

$$\sqrt[2]{2^7} =$$

$$\sqrt{6} =$$

$$\sqrt[2]{x^5} =$$

Change from exponential form to radical/root form. Simplify if possible.

$$-3^{\frac{2}{3}} =$$

$$16^{\frac{3}{4}} =$$

$$81^{\frac{5}{4}} =$$

$$(-5)^{\frac{2}{3}} =$$

$$9^{\left(\frac{5}{2}\right)} =$$

$$(-125)^{\left(\frac{5}{3}\right)} =$$

$$(-5)^{\frac{3}{2}} =$$

Simplify by exponents laws. Answer in root form.

$$3^{\frac{1}{3}} \times 3^{\frac{1}{2}} =$$

$$5^{\frac{1}{2}} \times 5^{\frac{1}{4}} =$$

$$7^{\frac{3}{8}} \times 7^{\frac{3}{4}} =$$

$$6^{\frac{3}{2}} \div 6^{\frac{1}{4}} =$$

$$\frac{2^{\frac{1}{4}}}{2^{-\frac{1}{2}}} =$$

$$\frac{5^2}{5^4} =$$

$$\left(\frac{2}{5}\right)^{\frac{1}{4}} =$$

$$\left(\frac{1}{7}\right)^3 =$$

$$(5^{0.5})^{\frac{1}{3}} =$$