

M9 - 5.1 - Combining Like Terms Notes

Remember to cross off terms you have dealt with.

$$x + 2 + 3 = x + 5$$

$$2 + x + 3 = x + 5$$

$$2x + x + 1 = 3x + 1$$

$$2x + 1 + x = 3x + 1$$

$$x^2 + 3x^2 + 2x + x + 3 + 1 = 4x^2 + 3x + 4$$

$$3 + x^2 + 2x + 1 + 3x^2 + x = 4x^2 + 3x + 4$$

$$\textcircled{5} - x + \textcircled{2} = 7 - x$$

$$5 + 2 = 7$$

Remember to circle the sign!

$$\textcircled{2x} - 3 + \textcircled{3x} = 5x - 3$$

$$2x + 3x = 5x$$

$$2 + 3 = 5$$

Add Coefficients

Do like term addition and subtraction off to the right.

$$\textcircled{-2x} + 3 + \textcircled{-x} = -3x + 3$$

$$-2x - x = -3x$$

$$-2 - 1 = -3$$

Subtract Coefficients

$$\textcircled{5x} - \boxed{2} - \textcircled{2x} + \boxed{3} = 3x + 1$$

$$5x - 2x = 3x$$

$$-2 + 3 = +1$$

$$\textcircled{-3} - \boxed{2x} + \textcircled{1} + \boxed{6x} = 4x - 2$$

$$-2x + 6x = 4x$$

$$-3 + 1 = -2$$

$$\textcircled{x^2} + \boxed{3x} - \textcircled{2x^2} - 1 - \boxed{2x} = -x^2 + x - 1$$

$$x^2 - 2x^2 = -x^2$$

$$1 - 2 = -1$$

Subtract Coefficients

$$5xy + 2yx = 7xy$$

$$5 + 2 = 7$$

$$xy = yx$$

They are the same

$$3x^2y^3 - 5y^3x^2 = -2x^2y^3$$

$$3 - 5 = -2$$

$$x^2y^3 = y^3x^2$$

$$2abcd + 3abcd = 5abcd$$

$$2 + 3 = 5$$

M9 - 5.2 - Multiplying Polynomials Notes

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

$$x + x = 2x$$

$$x = x^1 = 1x^1$$

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

$$2x \times 3x = 6x^2$$

Multiply Coefficients

Add Exponents

$$4x^2(5x) = 20x^3$$

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

$$-2x \times 5y = -10xy$$

$$x \times y = xy$$

$$y^2 \times x^2 = x^2y^2$$

$$3x^2y \times 6x^3y^2 = 18x^5y^3$$

$$2ab^2c^3d^4 \times a^3b^2c = 2a^4b^4c^4d$$

M9 - 5.3 - Dividing Polynomials Notes

$$\frac{6x}{2} = 3x$$

Simplify

$$6 \div 2 = 3$$

$$\frac{6}{2} = 3$$

$$\frac{8x}{2x} = 4$$

$$\frac{x}{x} = 1$$

$$\frac{8}{2} = 4$$

$$\frac{10x^2}{5x} = 2x$$

Subtract Exponents

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

Or
Use repeated
multiplication and
simplification

$$\frac{9x^3}{3x^2} = 3x$$

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

$$\frac{12x^3}{4x} = 3x^2$$

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

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

Subtract Exponents from bottom

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

$$\frac{3}{6} = \frac{1}{2}$$

$$\frac{3}{6x} = \frac{1}{2x}$$

x stays on the bottom

$$\frac{8x + 4}{2} = \frac{8x}{2} + \frac{4}{2} = 4x + 2$$

Separate into two fractions, then Divide.

$$\frac{1}{2}(8x + 4) = \frac{8x + 4}{2}$$

$$\frac{9x^2 + 6x}{3x} = \frac{9x^2}{3x} + \frac{6x}{3x} = 3x + 2$$