

M10 - 5.1 - Monomial Variable Greatest Common Factor WS

Determine the Greatest Common Factor of the Following

$15, 12$

$6x, 12x$

$14, 22x$

$50, 75x$

$100y, 30y$

$3x, 2$

$2x^2, 4x$

$5a, 25a^2$

$15n, 7n^2$

$16i, 12i^2$

$45x^2, 27x$

$13y^2, 52y$

$2a, 4b$

$5n, 8a$

$15x, 33y$

$21ab, 9a$

$14y, 21xy$

$8xy, 12xy$

$9a^3, 15a^2$

$22x^2y^2, 6y^3$

$a^2b^3, 3ab^4$

$6y^3, 22x^2y^2$

$6a^2, 22a, 8$

$4b^2, 44b, 11$

$9x^2, 21x, 33$

$3a^3, 2a^2, 5a$

$15s^3, 25s^2, 45$

$21ts^2, 14ts, 49t$

$2a^2b^3, 3ab^4, 6a^2b^5$

$15xy^2, 27x^2y^2, 12y^2x^3$

M10 - 5.2 - Remove Greatest Common Factors WS

Factor the following

$2x + 4$

$12x + 8$

$3x - 12$

$-4x + 12$

$3x - 3$

$3x - 21$

$6x + 4$

$-18x - 6$

$10x - 5$

$2x - 10$

$4x^2 - 8x$

$2x^2 + 5x$

$10x^3 - 5x^2$

$2x^2 - 2x$

$4x^2 + 8x + 12$

$4x^2 + 8x + 6$

$10x^3 - 20x^2 + 10x$

$2a + 2z$

$6x(x + 5) + 7(x + 5)$

$x(x - 2) - 6(x - 2)$

$7x(2x + 5) + 3(2x + 5)$

$x^2 + 3x - 2x - 6$

$6x^2 + 12x - 3x - 6$

$1 + x - y - xy$

$x^2 + xy + 2x + 2y$

$2x^3 + 12x^2 - 5x - 30$

$2x^3 - 6x^2 - 9x + 27$

$-2 - x^2$

$-8x - 4$

$-3x - 9$

M10 - 5.3 - Identifying "a", "b" and "c" in Polynomials WS

General form: $ax^2 + bx + c$

$3x^2 + 10x + 5$

$a = 3$

$b = 10$

$c = 5$

$1y^2 - 4y + 6$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$4x^2 - 4x - 24$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$-a^2 - 5a + 4$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$6x^2 + 11x$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$x^2 - 3x + 2$

$a = 1$

$b = -3$

$c = 2$

$2t - 3t^2 + 9$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$13 - x^2 - 6x$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$x^2 + 4x - 4$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$6c^2 + 4$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$15s - 2s^2 + 18$

$a = -2$

$b = 15$

$c = 18$

$x^2 + 2x + 5$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$21 + 7x^2 - 8x$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$r^2 + 2r + 5$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$8 + 14x - 2x^2$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$-2n^2 + 18$

$a = -2$

$b = 0$

$c = 18$

$7x - x^2$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$t^2 - 5t + 3$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$x^2 + 7x$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$8p^2$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$\frac{1}{2}b^2 - 4b + 7$

$a = \frac{1}{2}$

$b = -4$

$c = 7$

$\frac{3}{4}x + x^2$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$\frac{x}{2} + x^2$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$\frac{1}{3} - \frac{1}{2}x^2 - \frac{1}{6}x$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$\frac{1}{12}c^2 + 0.25$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

M10 - 5.3 - Identifying "a", "b", and "c" in Polynomials HW

Identify a, b and c

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

$$y = t^2 + 23t + 4$$

$$y = s^2 + s + 1$$

$$y = 3y^2 + 4y + 5$$

$$y = 12x^2 + 3x + 7$$

$$y = 7z + 2z^2 + 3$$

$$y = -3 + 4m + 2m^2$$

$$y = -4l - 2l^2 + 3$$

$$y = 5q^2 + 4q - 3q + 2$$

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

$$y = 2y + 3$$

$$y = 12x - 3x^2$$

$$y = r^2 + 3$$

$$y = 3v^2 - 4$$

$$y = x^2$$

$$y = 2y$$

$$y = 3$$

$$y = 12b^2 - 3b$$

$$y = 3x^2 + 2x - 4x + 5x - 2 + 3x^2 - 2x$$

$$y = 3x^2 + 2x - 2x^2 + x - x^2 + 5 - 4 - 3x - 1$$

M10 - 5.3 - Factoring $x^2 + bx + c$ "a = 1" WS

Factor the following

$$x^2 + 5x + 6 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

Check by foil:

$$x^2 + 6x + 8 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 + 7x + 12 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 + 3x - 4 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 + 4x + 3 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 - 3x - 18 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 - 11x + 24 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 + x - 30 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 - 2x - 4 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 - 13x - 30 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$x^2 - 13x + 30 \quad \begin{array}{l} \underline{\quad} X \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

M10 - 5.3 - Factoring $x^2 + bx + c$ "a = 1" WS

Factor the following

$$x^2 + 15x + 54 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

Check by foil:

$$x^2 + 13x + 40 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 + 5x - 24 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 - 13x + 36 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 + 12x + 27 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 + 10x + 24 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 - 11x + 28 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 - 10x + 21 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

$$x^2 - 16x + 12 \quad \begin{array}{l} \underline{\quad\quad} \times \underline{\quad\quad} = \\ \underline{\quad\quad} + \underline{\quad\quad} = \end{array}$$

M10 - 5.3 - Factoring $ax^2 + bx + c$ " $a \neq 1$ " WS

Factor the following

$$2x^2 + 7x + 6$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

Check by foil:

$$2x^2 - 3x - 2$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$6x^2 + 19x + 3$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$5x^2 + 12x + 1$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$3x^2 + 13x + 4$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$2x^2 + 3x - 9$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$3x^2 - 5x - 2$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$6x^2 + 17x + 10$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

$$5x^2 + 13x + 9$$

$$\begin{array}{l} \underline{\quad} \times \underline{\quad} = \\ \underline{\quad} + \underline{\quad} = \end{array}$$

M10 - 5.3 - Factoring $ax^2 + bx + c$ " $a \neq 1$ " WS

Factor the following

$$2x^2 + 5x + 3 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$2x^2 + x - 1 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$3x^2 - 8x + 4 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$2x^2 - 9x + 10 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$3x^2 - 11x + 6 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$2x^2 - 13x + 15 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$5x^2 - 17x - 12 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

$$4x^2 - 8x + 5 \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} =$$
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} =$$

M10 - 5.3 - Factoring $ax^2 + bx + c$ "a \neq 1" WS

Factor the following

$2x^2 - x - 6$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$2x^2 + 9x + 9$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$4x^2 + 16x + 15$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$6x^2 + 16x + 8$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$2x^2 + 7x + 6$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$3x^2 + 7x + 4$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$3x^2 + 4x + 1$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

$2x^2 + 3x + 4$

$\underline{\quad} \times \underline{\quad} =$

$\underline{\quad} + \underline{\quad} =$

M10 - 5.4 - Differences of Squares WS

Factor

$$x^2 - 1$$

$$x^2 - 25$$

$$x^2 - 16$$

$$(\underline{\quad} + \underline{\quad})(\underline{\quad} - \underline{\quad})$$

$$x^2 - 49$$

$$x^2 - 36$$

$$x^2 - 81$$

$$x^2 - 64$$

$$x^2 - 144$$

$$x^2 - 121$$

$$x^2 - 4$$

$$1 - x^2$$

$$9 - x^2$$

$$4 - 9x^2$$

$$-x^2 + 49$$

$$a^2 - b^2$$

$$4x^2 - 9$$

$$4x^2 - 16$$

$$4x^2 - 25$$

$$9x^2 - 1$$

$$9x^2 - 49$$

$$16x^2 - 25$$

$$49 - 81x^2$$

$$-25 + 121x^2$$

$$81x^2 - 4$$

$$27x^2 - 48$$

M10 - 5.4 - Differences of Squares WS

Factor

$$4x^2 - 9y^2$$

$$16x^2 - 25y^2$$

$$49y^2 - 25x^2$$

$$16x^2 - 225y^2$$

$$64x^2 - 169$$

$$4x^2 - 8y^2$$

$$x^4 - 9$$

$$x^6 - 144$$

$$x^4 - 81$$

M10 - 5.4 - Perfect Squares WS

Factor the following.

$$x^2 + 4x + 4$$

$$x^2 + 10x + 25$$

$$x^2 - 6x + 9$$

$$x^2 - 4x + 4$$

$$x^2 - 2x + 1$$

$$x^2 - 8x + 16$$

$$x^2 + 2x + 1$$

$$x^2 + 8x + 16$$

$$x^2 + 6x + 9$$

$$9x^2 + 12x + 4$$

$$4x^2 - 4x + 1$$

$$9x^2 - 12x + 4$$

$$9x^2 - 6x + 1$$

$$9x^2 + 6x + 1$$

$$16x^2 + 24x + 9$$

M10 - 5.5 - Factoring out GCF, Then Factoring WS

Factor

$$3x^2 + 15x + 18$$

$$3(x^2 + 5x + 6)$$
$$3(x + 2)(x + 3)$$

$$2x^3 - 4x^2 - 30x$$

$$-x^2 - 5x + 14$$

$$-x^4 + 11x^3 - 24x^2$$

$$2x^2y - 20xy + 42y$$

$$4x^2a - 4xa - 48a$$

$$4x^2 + 6x + 2$$

$$-4x^2 - 10x - 6$$

$$\frac{x^2}{2} + x + \frac{1}{2}$$

$$x^2 + 6x + 9$$

$$(x + 3)(x + 3)$$
$$(x + 3)^2$$

$$x^2 - 8x + 16$$

$$x^2 + 10x + 25$$

$$2x^2 + 24x + 72$$

$$3x^2 + 12x + 12$$

$$4x^2 - 8x + 4$$

M10 - 5.5 - Substitute to Factor, Combined Perfect Squares WS

Substitute the brackets for a variable, factor, the substitute the brackets back to solve.

$$4(h - 2)^2 - 8(h - 2) + 3$$

$$2(y + 3)^2 + 3(y + 3) - 9$$

$$(x + 1)^2 - (x + 1) - 12$$

$$(x - 4)^2 + 8(x - 4) + 15$$

$$(2 + y)^2 + 8(2 + y) + 15$$

$$3(6 - k)^2 - 8(6 - k) + 4$$

$$(x + 1)^8 - 9x^2$$

$$(x + 2)^2 - (x - 3)^2$$

Factor and simplify as much as possible.

$$x^4 - 81$$

$$x^8 - 16$$

M10 - 5.6 - Fractions/Decimals Factoring WS

Factor

$$x^2 + \frac{16}{15}x - 1$$

$$\frac{1}{6}x^2 - 2x - 18$$

$$\frac{1}{25}a^2 - \frac{1}{36}$$

$$\frac{1}{8}x^2 + \frac{3}{16}x - \frac{1}{8}$$

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

$$\frac{1}{16}t^2 + \frac{1}{2}t + 1$$

$$0.02x^2 - 0.23x + 0.3$$

$$5.1b^2 - 4.9b - 0.2$$

$$t^2 + 0.2t - 0.15$$

$$0.02x^2 + 0.05x - 0.03$$

$$1.5s^2 - 0.1s - 0.6$$

$$0.25x^2 - 0.0016$$

M10 - 5.7 - Finding k to Factor WS

Find k that allows the polynomial to be factored

$$x^2 + kx - 10$$

$$x^2 + kx + 20$$

$$3x^2 + kx - 10$$

$$x^2 + 8x - k$$

$$x^2 - 3x - k$$

$$23x^2 + 45x - k$$

$$15x^2 + kx + 2$$

$$12x^2 + 4x - k$$

$$kx^2 + 6x - 2$$

$$kx^2 + 12x + 6$$

$$kx^2 + 7kx + 20$$

$$x^2 - k$$