M10 - 5.1 - Rearrange the Terms WS

Rearrange from highest to lowest degree.

$x + 5 + x^2$ $x^2 - 2 + x$ $3 + 3x^2 + 3x$ $5x^2 + 9 + 2x^3$ $x^5 + x^2 - x - 9 + x^3$

$x^2 + x + 5$

Rearrange the terms so it says $0 =$

$x - 4 = x^2$ $x = x^2 + 2$ $4x^2 - 3x = 2$ $7x + 6x^3 = 5x^4 + 2$ $3 = x$

$-x^2 \quad -x^2$

$-x^2 + x - 4 = 0$

Rearrange the terms the terms so x^2 is positive

$-x^2 = 3 + x$ $4 - 2x^2 + 3x = 0$ $5 - x^2 = 2x$ $-12x^2 - 3 = 4 + x$

$+x^2 \quad +x^2$

$0 = 3 + x + x^2$

Rearrange to isolate y.

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

$-2 \quad -2$

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

Rearrange terms to isolate y, the x^2 is positive, and they are arranged from highest to lowest degree.

$y - 3 = x^2 - 4x$ $y - 4x^2 = 3x + 6$ $2 + y + 7x = 5x^2$ $4 = y - 2x^2 + 5x$ $8 - y = -1 + 2x^2$

$+3 \quad +3$

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

M10 - 5.1 - Distribution by "FOIL" (x+a)(x+b), (ax+b)(x+y) HW

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

$(n + 5)(n + 9)$

$(x + 6)(x + 3)$

$(x + 2)(x + 12)$

$(x + 11)(x + 9)$

$(p + 5)(p + 7)$

$(m - 3)(m - 8)$

$(x - 14)(x - 2)$

$(x - 12)(x - 3)$

$(x - 6)(x + 6)$

$(n - 3)(n + 3)$

$(x + 4)(x - 4)$

$(x + 5)(x - 5)$

$(p - 12)(p + 6)$

$(x + 9)(x - 7)$

$(y - m)(y + 2)$

$(x - 9)(x + z)$

$(x + y)(x - y)$

$(6x + 3)(x + 3)$

$(5q - 4)(q - 7)$

$(6x + 7)(x - 6)$

$(3a - b)(a + 2)$

$(6x + y)(x - 2y)$

$(9c - d)(d + 7)$

M10 - 5.2 - 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 - Greatest Common Factors WS

Factor the following

$2x + 4$ $12x + 8$ $3x - 12$ $-4x + 12$ $3x - 3$

$3x - 21$ $6x + 4$ $-18x - 6$ $10x - 5$ $2x - 10$

$4x^2 - 8x$ $2x^2 + 5x$ $10x^3 - 5x^2$ $2x^2 - 2x$

$4x^2 + 8x + 12$ $4x^2 + 8x + 6$ $10x^3 - 20x^2 + 10x$

$6x(x + 5) + 7(x + 5)$ $x(x - 2) - 6(x - 2)$ $7x(2x + 5) + 3(2x + 5)$

$6x^2 + 12x - 3x - 6$ $x^2 + 3x - 2x - 6$ $1 + x - y - xy$

$x^2 + xy + 2x + 2y$ $2x^3 + 12x^2 - 5x - 30$ $2x^3 - 6x^2 - 9x + 27$

$-2 - x^2$ $-8x - 4$ $-3x - 9$

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

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

$3x^2 + 10x + 5$

$a = 3$

$b = 10$

$c = 5$

$1y^2 - 4y + 6$

$a =$ ____

$b =$ ____

$c =$ ____

$4x^2 - 4x - 24$

$a =$ ____

$b =$ ____

$c =$ ____

$-a^2 - 5a + 4$

$a =$ ____

$b =$ ____

$c =$ ____

$6x^2 + 11x$

$a =$ ____

$b =$ ____

$c =$ ____

$x^2 - 3x + 2$

$a = 1$

$b = -3$

$c = 2$

$2t - 3t^2 + 9$

$a =$ ____

$b =$ ____

$c =$ ____

$13 - x^2 - 6x$

$a =$ ____

$b =$ ____

$c =$ ____

$x^2 + 4x - 4$

$a =$ ____

$b =$ ____

$c =$ ____

$6c^2 + 4$

$a =$ ____

$b =$ ____

$c =$ ____

$15s - 2s^2 + 18$

$a = -2$

$b = 15$

$c = 18$

$x^2 + 2x + 5$

$a =$ ____

$b =$ ____

$c =$ ____

$21 + 7x^2 - 8x$

$a =$ ____

$b =$ ____

$c =$ ____

$r^2 + 2r + 5$

$a =$ ____

$b =$ ____

$c =$ ____

$8 + 14x - 2x^2$

$a =$ ____

$b =$ ____

$c =$ ____

$-2n^2 + 18$

$a = -2$

$b = 0$

$c = 18$

$7x - x^2$

$a =$ ____

$b =$ ____

$c =$ ____

$t^2 - 5t + 3$

$a =$ ____

$b =$ ____

$c =$ ____

$x^2 + 7x$

$a =$ ____

$b =$ ____

$c =$ ____

$8p^2$

$a =$ ____

$b =$ ____

$c =$ ____

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

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

$b = -4$

$c = 7$

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

$a =$ ____

$b =$ ____

$c =$ ____

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

$a =$ ____

$b =$ ____

$c =$ ____

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

$a =$ ____

$b =$ ____

$c =$ ____

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

$a =$ ____

$b =$ ____

$c =$ ____

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

Identify a, b and c

$y = s^2 + s + 1$

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

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

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

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

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

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

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

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

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

$y = 2y + 3$

$y = 12x - 3x^2$

$y = r^2 + 3$

$y = 3v^2 - 4$

$y = x^2$

$y = 2y$

$y = 3$

$y = 12b^2 - 3b$

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

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

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

Factor the following

$x^2 + 5x + 6$

_____ X _____ =
_____ + _____ =

Check by foil:

$x^2 + 6x + 8$

_____ X _____ =
_____ + _____ =

$x^2 + 7x + 12$

_____ X _____ =
_____ + _____ =

$x^2 + 3x - 4$

_____ X _____ =
_____ + _____ =

$x^2 + 4x + 3$

_____ X _____ =
_____ + _____ =

$x^2 - 3x - 18$

_____ X _____ =
_____ + _____ =

$x^2 - 11x + 24$

_____ X _____ =
_____ + _____ =

$x^2 + x - 30$

_____ X _____ =
_____ + _____ =

$x^2 - 2x - 4$

_____ X _____ =
_____ + _____ =

$x^2 - 13x - 30$

_____ X _____ =
_____ + _____ =

$x^2 - 13x + 30$

_____ X _____ =
_____ + _____ =

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

Factor the following

$x^2 + 15x + 54$ _____ X _____ =
_____ + _____ =

Check by foil:

$x^2 + 13x + 40$ _____ X _____ =
_____ + _____ =

$x^2 + 5x - 24$ _____ X _____ =
_____ + _____ =

$x^2 - 13x + 36$ _____ X _____ =
_____ + _____ =

$x^2 + 12x + 27$ _____ X _____ =
_____ + _____ =

$x^2 + 10x + 24$ _____ X _____ =
_____ + _____ =

$x^2 - 11x + 28$ _____ X _____ =
_____ + _____ =

$x^2 - 10x + 21$ _____ X _____ =
_____ + _____ =

$x^2 - 16x + 12$ _____ X _____ =
_____ + _____ =

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

Factor the following

$2x^2 + 7x + 6$

_____ X _____ =
_____ + _____ =

Check by foil:

$2x^2 - 3x - 2$

_____ X _____ =
_____ + _____ =

$6x^2 + 19x + 3$

_____ X _____ =
_____ + _____ =

$5x^2 + 12x + 1$

_____ X _____ =
_____ + _____ =

$3x^2 + 13x + 4$

_____ X _____ =
_____ + _____ =

$2x^2 + 3x - 9$

_____ X _____ =
_____ + _____ =

$3x^2 - 5x - 2$

_____ X _____ =
_____ + _____ =

$6x^2 + 17x + 10$

_____ X _____ =
_____ + _____ =

$5x^2 + 13x + 9$

_____ X _____ =
_____ + _____ =

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

Factor the following

$2x^2 + 5x + 3$ _____ X _____ =

_____ + _____ =

$2x^2 + x - 1$ _____ X _____ =

_____ + _____ =

$3x^2 - 8x + 4$ _____ X _____ =

_____ + _____ =

$2x^2 - 9x + 10$ _____ X _____ =

_____ + _____ =

$3x^2 - 11x + 6$ _____ X _____ =

_____ + _____ =

$2x^2 - 13x + 15$ _____ X _____ =

_____ + _____ =

$2x^2 + 7x + 3$ _____ X _____ =

_____ + _____ =

$4x^2 - 8x + 5$ _____ X _____ =

_____ + _____ =

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

Factor the following

$2x^2 - x - 6$ _____ X _____ = _____ + _____ =

$2x^2 + 9x + 9$ _____ X _____ = _____ + _____ =

$4x^2 + 16x + 15$ _____ X _____ = _____ + _____ =

$6x^2 + 16x + 8$ _____ X _____ = _____ + _____ =

$2x^2 + 7x + 6$ _____ X _____ = _____ + _____ =

$3x^2 + 7x + 4$ _____ X _____ = _____ + _____ =

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

$2x^2 + 3x + 4$ _____ X _____ = _____ + _____ =

M10 - 5.4 - Differences of Squares WS

Factor

$x^2 - 1$

(____ + ____)(____ – ____)

$x^2 - 25$

$x^2 - 16$

$x^2 - 49$

$x^2 - 36$

$x^2 - 81$

$x^2 - 64$

$x^2 - 144$

$x^2 - 121$

$x^2 - 4$

$1 - x^2$

$9 - x^2$

$4 - 9x^2$

$-x^2 + 49$

$a^2 - b^2$

$4x^2 - 9$

$4x^2 - 16$

$4x^2 - 25$

$9x^2 - 1$

$9x^2 - 49$

$16x^2 - 25$

$49 - 81x^2$

$-25 + 121x^2$

$81x^2 - 4$

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 - 5.5 - 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 - 5.6 - Finding k to Factor WS

Find k that allows the polynomial to be factored

$x^2 + kx - 10$

$x^2 + kx + 20$

$3x^2 + kx - 10$

$x^2 + 8x - k$

$x^2 - 3x - k$

$23x^2 + 45x - k$

$15x^2 + kx + 2$

$12x^2 + 4x - k$

$kx^2 + 6x - 2$

$kx^2 + 12x + 6$

$kx^2 + 7kx + 20$

$x^2 - k$