Mathematics 10D

5.6 – Partial Factoring

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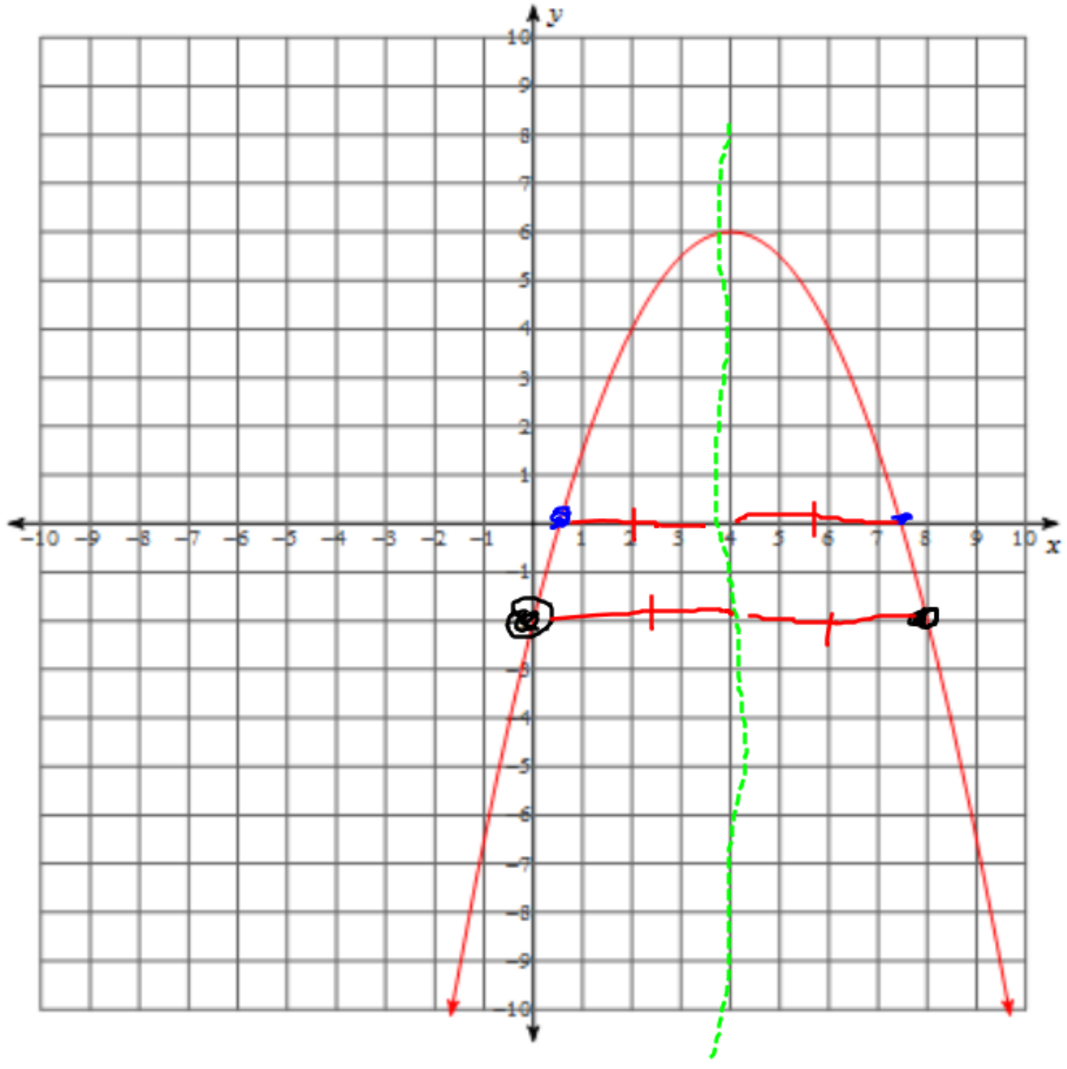
What is partial factoring?

- Fully factoring give the zeros or x-ints.

- Partial Factoring the coordinates of the y-int and is symmetric partner



$y = 2(x-4)(x+8)$

(h, k)

$x = 4, \quad x = -8$

$h = \dfrac{4 + -8}{2} = -2$

$y = 2(x+2)^2 - 72$

$k = 2(-2-4)(-2+8)$

$k = 2(-6)(6)$

$k = -72$

$y = 2x^2 + 8x + 13$

factor ax

$y = 2x(x + 4) + 13$

solve each for zero.

$2x = 0$

$x = 0$

$(0, 13)$

$x + 4 = 0$

$x = -4$

$(-4, 13)$

$h = \frac{0 + -4}{2} = -2$

$k = 2(-2)^2 + 8(-2) + 13$

$k = 8 - 16 + 13$

$k = -8 + 13$

$k = 7$

$y = 2(x + 2)^2 + 7$

$$y = -5x^2 + 40x - 1$$

$-5x$

$$y = -5x(x - 8) - 1$$

0 $\quad$ 8

$$h = \frac{0+8}{2} = 4$$

$$k = -5(4)^2 + 40(4) - 1$$

$$= -80 + 160 - 1 = 79$$

$$\therefore y = -5(x-4)^2 + 79$$

$$y = \underbrace{\frac{1}{2}x^2 - 6x}_{\frac{1}{2}x} + 15$$

$$y = \frac{1}{2}x(x - 12) + 15$$

$0 \quad 12$

$$h = \frac{0 + 12}{2} = 6$$

$$k = \frac{1}{2}(6)^2 - 6(6) + 15$$

$$k = 18 - 36 + 15 = -3$$

$$\therefore y = \frac{1}{2}(x - 6)^2 - 3$$

$$y = 0.8x^2 + 1.2x + 2.3$$

$$y = 0.8x(x + 1.5) + 2.3$$

$0 \uparrow \quad \uparrow -1.5$

$$h = \frac{0 + -1.5}{2} = -0.75$$

$$\therefore y = 0.8(x + 0.75)^2 + 1.85$$

$$k = 0.8(-0.75)^2 + 1.2(-0.75) + 2.3$$

$$k = 0.45 - 0.9 + 2.3 = 1.85$$