HOMEWORK REVIEW

p. 289 #66) $R = (30 - 4x)(16 + 2x)$

Zeros

$30 - 4x = 0$

$-4x = -30$

$x = \frac{-30}{-4}$

$x = 7.5$

$(7.5, 0)$

$16 + 2x = 0$

$2x = -16$

$x = -8$

$(-8, 0)$

$$h = \frac{7.5 + (-8)}{2}$$

$$h = \frac{-0.5}{2} = -0.25 = -\frac{1}{4}$$

axis of symmetry $x = -0.25$

optimal value

$$R = (30 - 4(-0.25))(16 + 2(-0.25))$$

$$R = (31)(15.5)$$

$$R = \$480.50$$

Vertex $(-0.25, 480.50)$

p.287 #9) factored form

$$y = a(x-s)(x-t)$$

Given info

	x-intercepts	y-intercept
a)	-2 and 4	5

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

Sub in $(0,5)$ and solve for "a"

(Means $(0,5)$)

$5 = a(0+2)(0-4)$

$5 = a(2)(-4)$

$5 = -8a$

$a = \frac{5}{-8} = -\frac{5}{8}$

$\boxed{a = -5/8}$

$\therefore y = -\frac{5}{8}(x+2)(x-4)$

direction is down b/c "a" is negative.

3.7 apps p.298 #8. demo.

Ex.1 $y = -\frac{5}{8}(x+2)(x-4)$

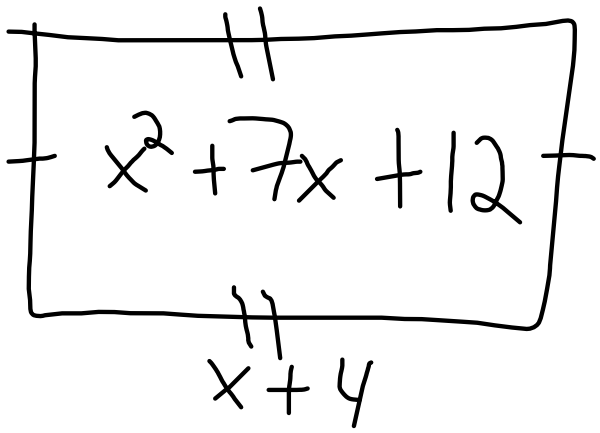
$y = -\frac{5}{8}(x^2 - 4x + 2x - 8)$

$y = -\frac{5}{8}(x^2 - 2x - 8)$

$y = -\frac{5x^2}{8} + \frac{10x}{8} + \frac{40}{8}$

$$\boxed{y = -\frac{5x^2}{8} + \frac{5x}{4} + 5}$$

p.299 #9 demo Ex. 2



$A = lw$

$A = x^2+7x+12$

$x \cdot x = x^2$

$4 \cdot 3 = 12$

$4x + 3x = 7x$

given

$A = (x+4)(x+3)$

$\therefore$ the width is $x+3$

Ex, 3 p. 308 #11 Demo

$h = -6t^2 + 36t$

a) ground? x-axis? zeros?

$y = -6t(t - 6)$

$-6t = 0$

$t = 0$

$t - 6 = 0$

$t = 6$

∴ at 0 secs. the rocket is at 6 secs. the ground.

take-off

landing

b) max height? optimal value? k?

$$h = \frac{0+6}{2} = 3$$

Vertex

$h = 3$

axis of symmetry $x = 3$

Question

$y = h = -6(3)^2 + 36(3)$

$y = h = -54 + 108$

$y = h = 54$

vertex $(3, 54)$

$\therefore$ max height is 54 m.