no. 8

a (a) $\frac{1}{2} \times 2 = 1$

(b) $3 + 3 = 6$

c $= 1 \times 2 = 2$

(b) a $-1/2 \times 1/2 = -1/4$

b $3 + 3 = 6$

c $-1 - 1 = -2$

(c) a $2 \times 2 = 4$

b $-3 + 3 = 0$

c $-1 - 1 = -2$

(d) a $-2 \times 1/2 = -1$

b $-3 - 3 = -6$

c $-1 - 1 = -2$

e a $-1/2 \times 1/2 = -1/4$

b $-3 - 3 = -6$

c $-1 + 1 = 0$

5 (a)

$y = 2x + 12x - 14$

$h = -\frac{b}{2a} = \frac{-12}{4}$

$= -3$

$k = -14 - (3)^2 9$

$-14 - (12 \times 2)$

$= -26 - 38$

$(-3, -26)$ $(-3, -38)$

(b) $-2x^2 + 12x - 7$

$h = \frac{-b}{2a} = \frac{-12}{-2} = -6$

$k = -7 - (-6)^2 - 2$

$-7 + 72$

$= 65$

$(-6, 65)$

6

a. $(x-h)^2 = 4p(y-k)$

$(6-4)^2 = 4p(6+2)$

$4 = 4p(8)$

$4 = 32p$

number 6

Vertex $= (4, -2)$

(6)

$x^2 = 4py$

a. $k + p = 6$

$-2 + p = 6$

$p = 8$

$(x-h)^2 = 4p(y-k)$

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

$(x-4)^2 = 32y + 64$

$(x^2 - 4)^2 - 32y + 64 = 0$

(7)

$k + p = 14$

$2 + p = 14$

$p = 12$

$(x+3)^2 = 4(12)(y-2)$

$(x+3)^2 = 48y - 96$

$(x+3)^2 = 48y - 96$

2

a $y = x^2 + 5x - 14$

$-14x^2$

$x^2 - 2x + 7x - 14 = 0$

$x(x-2) + 7(x-2) = 0$

$(x+7)(x-2) = 0$

$x = -7$

$x = 2$

(b) $y = \frac{-2x^2}{2} - \frac{4x}{2} + \frac{16}{2}$

$-x^2 - 2x + 8$

$-8x2$

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

$x(-x+2) + 4(-x+2)$

$(x+4)(2-x)$

$x = 4$

$x = 2$

3

(a) $y = (3x+8)(x+4)$

$= 3x^2 - 12x + 8x - 32$

$y = 3x^2 - 4x - 32$

(b)

$y = (2x+3)(3x-7)$

$= 6x^2 - 14x + 9x - 21$

$y = 6x^2 - 5x - 21$

4

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$\frac{6 \pm \sqrt{(-5)^2 - (4 \times 12 \times 14)}}{2 \times 14}$

$\frac{6 \pm \sqrt{36 + 672}}{28}$

$\frac{6 \pm \sqrt{708}}{28}$

$\frac{6 \pm 26.61}{28}$

$\frac{6 + 26.61}{28} = \frac{32.6}{28}$

$x = 1.16$

$\frac{6 - 26.61}{28} = \frac{-20.61}{28}$

$= -0.74$

$x = -0.74$ or

$x = 1.16$

Unit 5 and 6

1

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

$y = 0$

$0 = 2(x-4)^2$

$2 = 0$ or

$(x-4)^2 = 0$

$x-4 = 0$

$x-4 = 0$

$x = 4 \quad y = 0$

~~Maximum point~~ $(4, 0)$

Minimum point

b

$y = -(x+3)^2 - 6$

$h = -3$

$k = -6$

$(-3, -6)$

maximum point

(c) $y = -3x^2 + 2$

$k = 2$

$h = -\frac{b}{2a} \quad \frac{0}{2x-3} = 0$

$0 = -3x^2$

$h = 0$

$k = c - ah^2$

$k = c - \left(\frac{b}{2a}\right)^2$

$2 - 0$

(h, k)

$(0, 2)$

maximum point.