

HW 69

* see graphs on last page *

A2

1. a. $2x(3x^2+5x-2)$

$2x(3x-1)(x+2)$

b. $(u-5)(u+4)$

c. $-5y(y^2-4)$
 $-5y(y+2)(y-2)$

d. $(3m-2)(4m-1)$
 $-3m-8m=-5m$

$(3m-2)(4m-1)$
 $3m-8m=-5m$

e. $10(3t^2+29t+18)$

$10(3t+2)(t+9)$

f. $2x(2x^2+5x-3)$

$2x(2x-1)(x+3)$

g. $4d^2(6d^2-d-7)$

$4d^2(6d-7)(d+1)$

h. $-4y(y^2-16)$

$-4y(y+4)(y-4)$

2. a) $y = 4(x^2+2x+1)-16$

$y = 4x^2+8x+4-16$

$y = 4x^2+8x-12$

b) $y = 2(x^2-6x+9)+5$

$y = 2x^2-12x+18+5$

$y = 2x^2-12x+23$

c) $y = -3(x^2-4x+4)+25$

$y = -3x^2+12x-12+25$

$y = -3x^2+12x+13$

3. a) v: $(-3, -5)$ pt: $(-1, -1)$

$y = a(x+3)^2 - 5$

$-1 = a(-1+3)^2 - 5$

$4 = 4a$

$1 = a$

$\star y = (x+3)^2 - 5$

$y = x^2 + 6x + 9 - 5$

$\star y = x^2 + 6x + 4$

b) v: $(4, 6)$ pt: $(3, 3)$

$y = a(x-4)^2 + 6$

$3 = a(3-4)^2 + 6$

$-3 = a$

$\star y = -3(x-4)^2 + 6$

$y = -3(x^2 - 8x + 16) + 6$

$y = -3x^2 + 24x - 48 + 6$

$\star y = -3x^2 + 24x - 42$

c) v: $(-1, 2)$ pt: $(0, 4)$

$y = a(x+1)^2 + 2$

$4 = a(0+1)^2 + 2$

$2 = a$

$\star y = 2(x+1)^2 + 2$

$y = 2(x^2 + 2x + 1) + 2$

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

$\star y = 2x^2 + 4x + 4$

4. a) $p(x) = 9x^2 + 3x - 39x - 13$

$= 9x^2 - 36x - 13$

b) $k(x) = -(x^2 + 8x + 2x + 16)$

$= -(x^2 + 10x + 16)$

$= -x^2 - 10x - 16$

c) $g(x) = 4x^2 - 6x + 30x - 45$

$= 4x^2 + 24x - 45$

5. a) LOS: $-10/2 = -5 = x$

vertex: $(-5)^2 + 10(-5) + 24 = -1$
 $(-5, -1)$

y-int: $(0, 24)$

x-int: $0 = (x+6)(x+4)$

$0 = x+6$ $0 = x+4$
 $-6 = x$ $-4 = x$

$(-6, 0)$; $(-4, 0)$

b) LOS: $-12/2(-2) = 3 = x$

vertex: $-2(3^2) + 12(3) + 14 = 32$
 $(3, 32)$

y-int: $(0, 14)$

x-int: $0 = -2(x^2 - 6x - 7)$

$0 = -2(x-7)(x+1)$

$x = 7, x = -1$

$(7, 0)$; $(-1, 0)$

c) LOS: $-8/2(4) = -1 = x$

vertex: $4(-1)^2 + 8(-1) - 21 = -25$
 $(-1, -25)$

y-int: $(0, -21)$

x-int: $0 = 4x^2 + 8x - 21$

$0 = (2x-3)(2x+7)$

$x = 3/2, x = -7/2$

$(3/2, 0)$; $(-7/2, 0)$