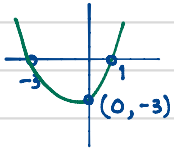


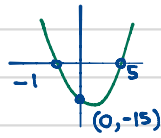
EXERCISE 3E

1 b.  $y = (x+3)(x-1)$   
 x axis int:  
 $y=0$   
 $0 = (x+3)(x-1)$   
 $x = -3, 1$



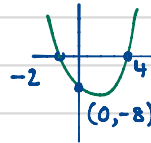
y axis int:  
 $x=0$   
 $y = (3)(-1) = -3$

2a.  $y = 3(x+1)(x-5)$   
 x-axis int:  
 $0 = 3(x+1)(x-5)$   
 $x = -1, 5$

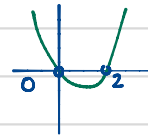


y axis int:  
 $y = 3(1)(-5) = -15$

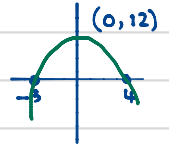
3 a.  $y = x^2 - 2x - 8$   
 $y = (x-4)(x+2)$   
 $x = 4, -2$



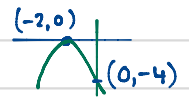
b.  $y = x^2 - 2x$   
 $y = x(x-2)$   
 $x = 0, 2$



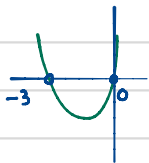
f.  $y = -(x^2 - x - 12)$   
 $y = -(x+3)(x-4)$   
 $x = -3, 4$



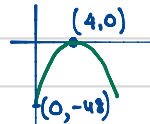
g.  $y = -x^2 - 4x - 4$   
 $y = -(x^2 + 4x + 4)$   
 $y = -(x+2)^2$   
 $x = -2$



e.  $y = x(x+3)$   
 x axis int:  
 $0 = x(x+3)$   
 $x = 0, -3$

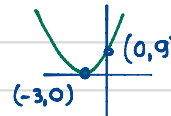


e.  $y = -3(x-4)^2$   
 x axis int:  
 $0 = -3(x-4)^2$   
 $x = 4$

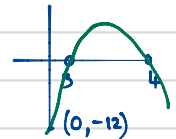


y axis int:  
 $y = -3(-4)^2 = -48$

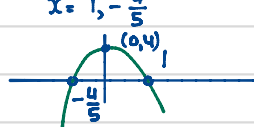
c.  $y = x^2 + 6x + 9$   
 $y = (x+3)^2$   
 $x = -3$



h.  $y = -(x-3)(x-4)$   
 $x = 3, 4$

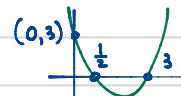


f.  $y = -5(x-1)(x+\frac{4}{5})$   
 x-axis int:  
 $0 = -5(x-1)(x+\frac{4}{5})$   
 $x = 1, -\frac{4}{5}$

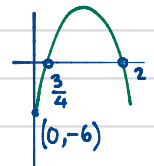


y axis int:  
 $y = -5(-1)(\frac{4}{5}) = 4$

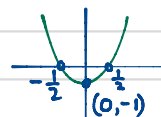
d.  $y = 2x^2 - 7x + 3$   
 $y = (2x-1)(x-3)$   
 $x = \frac{1}{2}, 3$



i.  $y = -4x^2 + 11x - 6$   
 $y = -(4x^2 - 11x + 6)$   
 $y = -(4x-3)(x-2)$   
 $x = \frac{3}{4}, 2$



e.  $y = 4x^2 - 1$   
 $y = (2x+1)(2x-1)$   
 $x = -\frac{1}{2}, \frac{1}{2}$



$$4a. y = (x-2)(x-5)$$

$$y = x^2 - 7x + 10$$

$$b. y = (x+7)(x+10)$$

$$y = x^2 + 17x + 70$$

$$c. y = (x+5)(x-3)$$

$$y = x^2 + 2x - 15$$

$$d. y = (x+3)(x-n)$$

$$-16 = 4(1-n)$$

$$1-n = -4$$

$$n = 5$$

$$y = (x+3)(x-5)$$

$$= x^2 - 2x - 15$$

$$6a. y = a(x-1)(x-5)$$

$$15 = a(0-1)(0-5)$$

$$15 = a(-1)(-5) = 5a$$

$$a = 3$$

$$y = 3(x^2 - 6x + 5)$$

$$y = 3x^2 - 18x + 15$$

$$b. y = a(x+2)(x-7)$$

$$-56 = a(2)(-7)$$

$$a = \frac{-56}{-14} = 4$$

$$y = 4(x+2)(x-7)$$

$$y = 4(x^2 - 5x - 14)$$

$$y = 4x^2 - 20x - 56$$

$$c. -6 = a(0+6)(0+2)$$

$$-6 = 12a$$

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

$$y = -\frac{1}{2}(x^2 + 8x + 12)$$

$$y = -\frac{1}{2}x^2 - 4x - 6$$

$$d. y = a(x+3)(x-2)$$

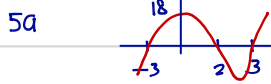
$$16 = a(4)(-1)$$

$$16 = -4a$$

$$a = -4$$

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

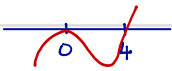
$$y = -4x^2 - 4x + 24$$



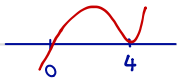
b  $x = 0, 4, 6$



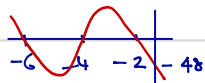
c  $x = 0, 4$



d  $x = 0, 4$



e  $x = -6, -4, -2$



f  $x = -1, 3$



$$e. y = a(x+10)(x-7)$$

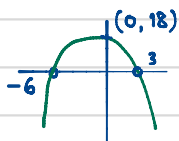
$$90 = a(18)(1)$$

$$a = 5$$

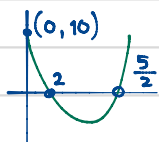
$$y = 5(x^2 + 3x - 70)$$

$$y = 5x^2 + 15x - 350$$

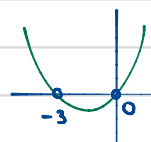
7.C  $y = -x^2 - 3x + 18$   
 $y = -(x^2 + 3x - 18)$   
 $y = -(x+6)(x-3)$   
 $x = -6, 3$



d.  $y = 2x^2 - 9x + 10$   
 $y = (2x-5)(x-2)$   
 $x = \frac{5}{2}, 2$



f.  $y = 3x^2 + 9x$   
 $y = 3x(x+3)$   
 $x = 0, -3$



8A  $y = (x-3)(x-8)$   
 $y = x^2 - 11x + 24$   
 $(\frac{5}{2}, -\frac{25}{4})$

B  $y = 14 + 5x - x^2$   
 $= -(x^2 - 5x - 14)$   
 $y = -(x-7)(x+2)$   
 $(\frac{5}{2}, \frac{81}{4})$

C.  $y = 6x^2 - x - 70$   
 $y = (2x-7)(3x+10)$   
 $(\frac{1}{12}, -\frac{1681}{24})(\frac{1}{12}, -70)$

D  $y = x(3-x)$   
 $y = -x^2 + 3x$   
 $(\frac{3}{2}, \frac{9}{4})$

E  $y = (x+2)(x-7)$   
 $y = x^2 - 5x - 14$   
 $(\frac{5}{2}, -\frac{81}{4})$

F  $y = -3(x+3)(x+7)$   
 $y = -3(x^2 + 10x + 21)$   
 $(-5, 12)$

G  $y = x^2 + 2x + 1$   
 $y = (x+1)^2$   
 $(-1, 0)$

H  $y = x^2 + 8x + 12$   
 $y = (x+6)(x+2)$   
 $(-4, -4)$

I  $y = x^2 - 25$   
 $y = (x+5)(x-5)$   
 $(0, -25)$

a y axis intercept  $\oplus$ .  
 A, B, G, H

b Highest point of vertex  
 B, D, F

c F, G, H

d D

e G

f I

g. B x E

h A, C, E