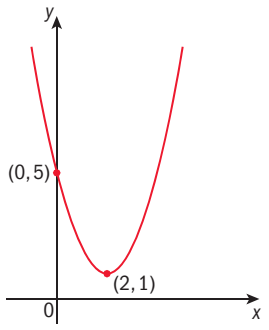
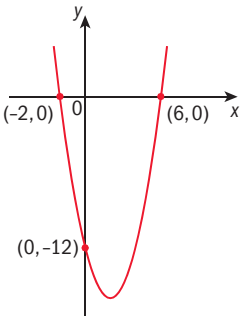
Exercise 2J

Use the information provided in the graphs to write the equation of each function in standard form $y = ax^2 + bx + c$.

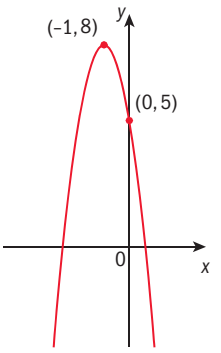
1



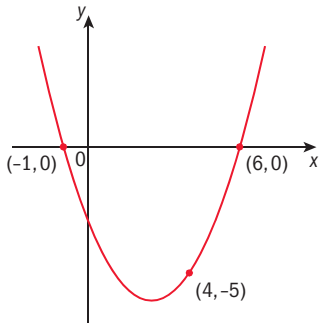
2



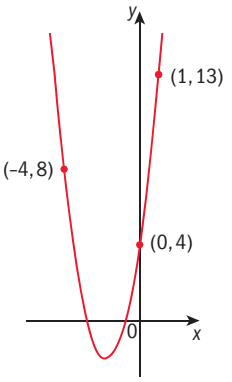
3



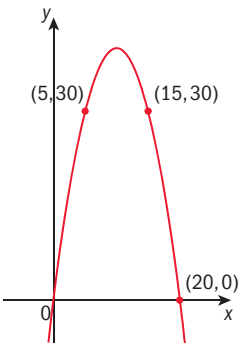
4



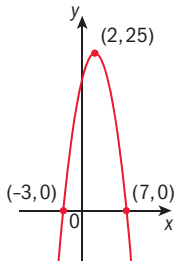
5



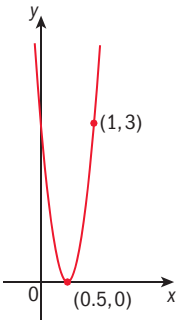
6



7



8



Exercise 2I

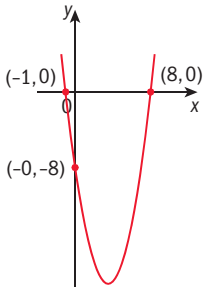
1 a $(-3,0)$; $(7,0)$; $(0,-21)$

b $(4,0)$; $(5,0)$; $(0,40)$

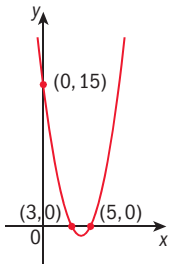
c $(-2,0)$; $(-1,0)$; $(0,-6)$

d $(-6,0)$; $(2,0)$; $(0,-60)$

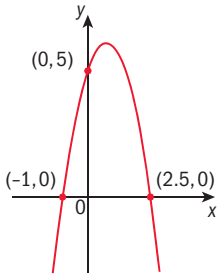
2 a $y = (x - 8)(x + 1)$



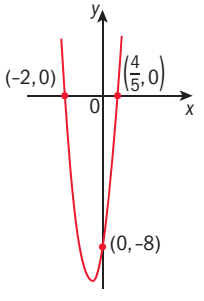
b $y = (x - 3)(x - 5)$



c $y = -2(x + 1)(x - 2.5)$

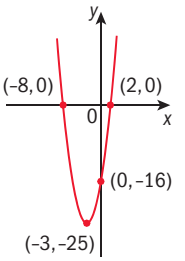


d $y = 5(x+2)\left(x-\frac{4}{5}\right)$



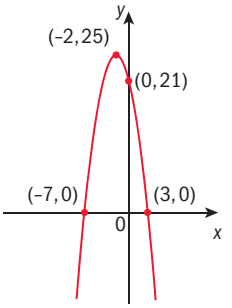
3 a $y = (x + 3)^2 - 25$;

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



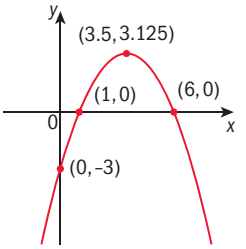
b $y = -(x + 2)^2 + 25$;

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



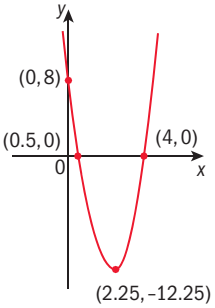
c $y = -0.5(x - 3.5)^2 + 3.125$;

$y = -0.5(x - 1)(x - 6)$



d $y = 4(x - 2.25)^2 - 12.25$;

$y = 4(x - 0.5)(x - 4)$



4 a i 0 ii 6

b $x = 3$

c $(3, -18)$

5 a $(f \circ g)(x) = (x - 2)^2 + 3$

b $(2, 3)$

c $h(x) = x^2 - 14x + 50$

d 50

Exercise 2J

1 $y = x^2 - 4x + 5$

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

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

4 $y = \frac{1}{2}x^2 - \frac{5}{2}x - 3$

5 $y = 2x^2 + 7x + 4$

6 $y = -0.4x^2 + 8x$

7 $y = -x^2 + 4x + 21$

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

Exercise 2K

1 a 14.5 metres

b 1.42 seconds

2 14 cm, 18 cm

3 a $10 - x$

c 50 cm^2

4 12.1 cm

5 17 m, 46 m

6 7, 9, 11

7 $\frac{1+\sqrt{5}}{2}$

8 28.125 m^2

9 60 km, 70 h^{-2}

10 6 hours

Review exercise non-GDC

1 a $-6, 2$

b 8

c $-\frac{7}{3}, 1$

d 3, 4

e $-1 \pm \sqrt{13}$

f $\frac{7 \pm \sqrt{13}}{6}$

2 a -4

b $-4, 1$

c $x = -1.5$

d -1.5