# Completing the Square

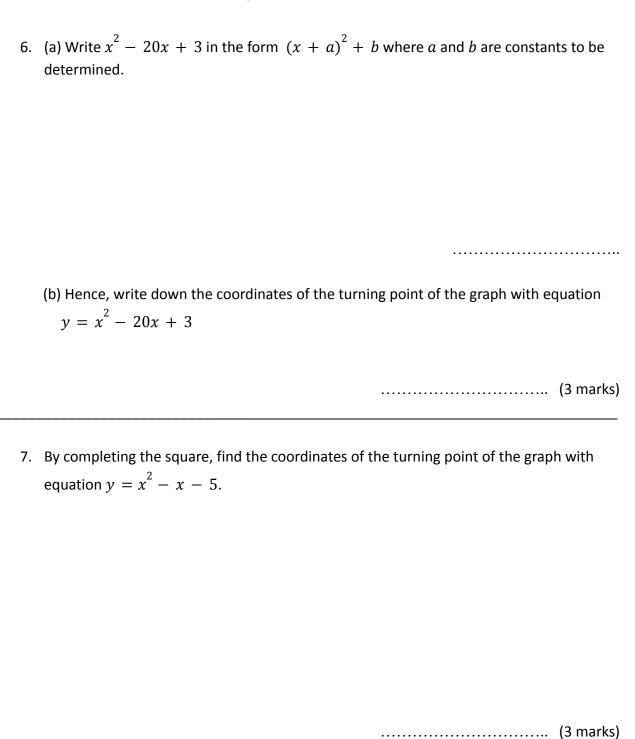
**Exam Style Questions** 

1. Complete the square of 
$$x^2 + 8x + 4$$

2. Complete the square of 
$$x^2 + 12x + 6$$

3. Complete the square of 
$$x^2 + 20x - 4$$

4.	(a) Write $x^2 + 12x + 6$ in the form $(x + a)^2 + b$ where $a$ and $b$ are integers.
	(b) Hence, write down the coordinates of the turning point of the graph with equation $y = x^2 + 12x + 6$
	(3 marks
5.	(a) Write $x^2 + 9x - 1$ in the form $(x + a)^2 + b$ where $a$ and $b$ are constants to be determined.
(b)	Hence, write down the coordinates of the turning point of the graph with equation $y=x^2+9x-1$
	(3 marks



8. By completing the square, find the coordinates of the turning point of the graph with equation  $y = 5x^2 + 10x + 20$ .

..... (4 marks)

9. By completing the square, find the coordinates of the turning point of the graph with equation  $y = 3x^2 + 12x + 18$ .

...... (4 marks)

10. By completing the square, find the coordinates of the turning point of the graph with equation  $y = 2x^2 + 8x + 9$ .

...... (4 marks)

11. By completing the square, find the coordinates of the turning point of the graph with equation $y = 3x^2 + 7x - 3$ .	with
(4 m	narks)
12. By completing the square, solve the equation $x^2+6x+2=0$ leaving your solution the form $a\pm b\sqrt{c}$ where $a$ , $b$ and $c$ are integers.	ions
(4 m	narks)
13. By completing the square, solve the equation $x^2 + 7x + 11 = 0$ leaving your soluin surd form.	ıtions
(4 m	narks)

14. By completing the square, solve the equation  $2x^2 + 8x - 2 = 0$  leaving your solutions in the form  $a \pm b\sqrt{c}$  where a, b and c are integers.

..... (5 marks)

15. By completing the square, solve the equation  $-x^2 - 7x + 2 = 0$  leaving your solutions in surd form.

...... (5 marks)

16. By completing the square, solve the equation $ax^2 + bx + c = 0$ , leaving your answer in terms of $a$ , $b$ and $c$ .