

## COORDINATE GEOMETRY(I)

Form 6

Vol 4

### Part 7 – Quadratic graph

1. (a)  $c = 5$

(b)  $-\frac{b}{2} = \frac{5}{2}$

$$b = -10$$

(c)  $2x^2 - 10x + 5 = 0$

$$x = \frac{10 \pm \sqrt{100 - 4(2)(5)}}{2(2)} = \frac{5 \pm \sqrt{15}}{2}$$

2. (a) Put  $x = -2, y = -9$

$$-9 = -2(-2)^2 + 3(-2) + c$$

$$c = 5$$

Put  $x = q, y = -9$

$$-9 = -2q^2 + 3q + 5$$

$$q = 3.5 \text{ or } q = -2(\text{rej.})$$

(b) Put  $y = 0,$

$$-2x^2 + 3x + 5 = 0$$

$$x = -1 \text{ or } x = \frac{5}{2}$$

$$A = (-1, 0), B = \left(\frac{5}{2}, 0\right)$$

(c)  $\text{Area} = \frac{(1 + 2.5 + 3.5 + 2)(9)}{2} = 40.5$

3. (a)  $y = -x^2 + x - \frac{k}{4}$

$$1^2 - 4(-1)\left(-\frac{k}{4}\right) = 0$$

$$k = 1$$

(b)  $Q = \left(-\frac{1}{2(-1)}, 0\right) = \left(\frac{1}{2}, 0\right)$

$$4. \quad \frac{-b}{2} = 4$$

$$b = -16$$

$$y\text{-intercept} = 5$$

$$x\text{-intercept} = \frac{16 \pm \sqrt{216}}{4} = \frac{8 \pm 3\sqrt{6}}{2}$$

5.

	$a$	$b$	$c$	$\Delta$
(a)	+	-	-	+
(b)	-	+	-	-
(c)	-	+	+	+
(d)	+	-	+	+
(e)	-	+	-	+
(f)	+	-	-	+
(g)	-	0	+	+
(h)	+	0	-	+
(i)	(cancel)			
(j)	-	+	-	+