

1	Use of $b^2 - 4ac$
	Obtain $k^2 - 20k + 64$
	Attempt solution of quadratic equation or inequality
	Obtain $k < 4$, $k > 16$ or clear equivalent
4(a)	$\{10\} - (x \{+\} \{3\})^2$
4(b)	State reflection in x -axis
	Obtain $m = -3$
	Obtain $n = 10$

1(a)	$\{9\} \{(x-2)^2\} \{-28\}$
1(b)	$k < -28$
1(c)	$9(x - \text{their } 2)^2 - \text{their } 28 = -15 \Rightarrow (x-2)^2 = \frac{13}{9} \text{ or } x = \frac{36 \pm \sqrt{36^2 - 4 \times 9 \times 23}}{2 \times 9}$
	$x = 2 \pm \frac{\sqrt{13}}{3} \text{ or } \frac{6 \pm \sqrt{13}}{3} \text{ or } 2 \pm \sqrt{\frac{13}{9}} \text{ or } \frac{36 \pm \sqrt{468}}{18} \text{ oe}$

2	$2\left(\frac{-y-4}{2}\right)y + 5y^2 = 24$ $\text{or } 2\left(\frac{24-5y^2}{2y}\right) + y + 4 [= 0]$ $\text{or } 2x(-4-2x) + 5(-4-2x)^2 = 24$ $4y^2 - 4y = 24 \quad \text{or} \quad 16x^2 + 72x + 56 [= 0]$ $\Rightarrow y = -2, y = 3 \quad \text{or} \quad x = -1, x = -\frac{7}{2}$ $(-1, -2), \left(-\frac{7}{2}, 3\right)$
11(a)	$\{(x+2)^2\} \{-2\}$
11(b)(i)	$y = (x+2)^2 - 2 \Rightarrow y + 2 = (x+2)^2$ $x = [\pm] \sqrt{y+2} - 2$ $[f^{-1}(x) =] - \sqrt{x+2} - 2$

11(b)(ii)

$$[gf(x)=] - \{their \text{ completed square form} \} - 4 \text{ or } -(x^2 + 4x + 2) - 4$$

$$[gf(x)=] - (x+2)^2 - 2$$

$$x = [\pm] \sqrt{-y-2} - 2$$

$$[(gf)^{-1}(x)=] - \sqrt{-x-2} - 2$$

Alternative Method for Question 11(b)(ii)

$$(gf)^{-1} = f^{-1}g^{-1}$$

$$g^{-1}(x) = -x - 4$$

$$(gf)^{-1}(x) = -\sqrt{-x-4+2} - 2$$

$$[(gf)^{-1}(x)=] - \sqrt{-x-2} - 2$$