| | | | | | |
|---|---|---|---|---|---|
| **24** | (a) | | 13 | 1 | B1 |
| | (b) | $y = 2\left(x^2 - 10x\right) + 9$ **or**<br>$y = 2\left(x^2 - 10x + \frac{9}{2}\right)$ | | | M1 for a correct equation for a first step in order to complete the square |
| | | e.g.<br>$y = 2\left(\left(x-5\right)^2 - 5^2\right) + 9$ **or**<br>$y = 2\left(\left(x-5\right)^2 - 5^2 + \frac{9}{2}\right)$ **or**<br>$y = 2\left(x-5\right)^2 - 41$ oe | | | M1 dep |
| | | $\left(x-5\right)^2 = \frac{y+41}{2}$ oe | | | M1 |
| | | | $5 + \sqrt{\frac{x+41}{2}}$ | 4 | A1 oe |
| | | | | | **Total 5 marks** |
| **Note: Allow candidates to swap *x* and *y* when finding the inverse** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **24 Alt** | (a) | | 13 | 1 | B1 |
| | (b) | $2x^2 - 20x + (9 - y) = 0$ | | | M1 for a correct first step |
| | | $x = \frac{20 \pm \sqrt{400 - 8(9 - y)}}{4}$ **or** $x = \frac{20 + \sqrt{400 - 8(9 - y)}}{4}$ | | | M1 dep |
| | | $x = 5 \pm \sqrt{\frac{41 + y}{2}}$ oe | | | M1 |
| | | | $5 + \sqrt{\frac{x + 41}{2}}$ | 4 | A1 oe |
| | | | | | **Total 5 marks** |
| **Note: Allow candidates to swap *x* and *y* when finding the inverse** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **24 Alt** | (a) | | 13 | 1 | B1 |
| | (b) | $2x^2-20x+(9-y)(=0)$ | | | M1 for a correct first step |
| | | e.g.<br>$2\left((x-5)^2-5^2\right)+9-y$ (= 0) **or**<br>$2\left((x-5)^2-5^2+\frac{9}{2}\right)-y$ (= 0) **or**<br>$2(x-5)^2-41-y$ (= 0) | | | M1 dep |
| | | $(x-5)^2=\frac{y+41}{2}$ oe | | | M1 |
| | | | $5+\sqrt{\frac{x+41}{2}}$ | 4 | A1 oe |
| | | | | | **Total 5 marks** |
| **Note: Allow candidates to swap *x* and *y* when finding the inverse** | | | | | |

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