

| Question Number | Scheme   | Marks  |
|-----------------|--|--------|
| 2(a)            | $220 = (28 \times 10) - \frac{1}{2}a \times 10^2$  | M1 A1  |
|                 | Other possible equations, any 2 of which could be used to obtain an equation in $a$ <b>only</b> :<br>$28 = u + 10a$<br>$220 = \frac{(u + 28)}{2} \times 10$<br>$220 = 10u + \frac{1}{2}a \times 10^2$<br>$28^2 = u^2 + 2a \times 220$  |        |
|                 | $a = 1.2 \text{ (m s}^{-2}\text{)}$  | A1     |
|                 |  | (3)    |
| 2(b)            | Any ONE of these:<br>$28 = u_4 + 1.2 \times 6 \Rightarrow u_4 = 20.8$<br>$28 = u_5 + 1.2 \times 5 \Rightarrow u_5 = 22$<br>$s_4 = 16 \times 4 + \frac{1}{2} \times 1.2 \times 4^2 = 73.6$<br>$s_5 = 16 \times 5 + \frac{1}{2} \times 1.2 \times 5^2 = 95$<br>Allow distances from $Q$<br>e.g. $s_6 = 28 \times 6 - \frac{1}{2} \times 1.2 \times 6^2 = 146.4$<br>$s_5 = 28 \times 5 - \frac{1}{2} \times 1.2 \times 5^2 = 125$ | M1A1ft |
|                 |  |        |
|                 | e.g. $s = 20.8 \times 1 + \frac{1}{2} \times 1.2 \times 1^2$ OR $s = 22 \times 1 - \frac{1}{2} \times 1.2 \times 1^2$<br><b>OR</b> $s = 95 - 73.6$ OR $22^2 = 20.8^2 + 2 \times 1.2s$ OR $s = 146.4 - 125$   | M1     |
|                 | 21.4 (m) Allow 21 (m).   | A1 (4) |
|                 |  | (7)    |
|                 | <b>Notes for question 2</b>  |        |
|                 | <b>N.B.</b> Use of an incorrect suvat formula is M0.   |        |
| 2(a)            | M1 Complete method to find an equation in $a$ <b>only</b> (note that $u = 16$ )<br><b>N.B.</b> Allow $220 = (28 \times 10) + \frac{1}{2}a \times 10^2$ ( $s = ut + \frac{1}{2}at^2$ for 'reverse' motion) leading to $a = -1.2$ M1A0A1<br>but if they then change $a$ to 1.2, then it becomes M1A1A1 retrospectively)<br>M0 if they assume $u = 0$   |        |
|                 | A1 Correct equation  |        |