

$$s = \frac{4t^2 - 2t^3}{12} + C_1 t + C_2$$

at $t=0$ $s = -3m$

$$2 \cdot \frac{4(0)^2 - 2(0)^3}{12} - (0)^2 + C_1 \cdot 0 + C_2 = -3$$

at $t=2.5$ $s = 30m$

$$30 = \frac{4(2.5)^2 - 2(2.5)^3}{12} - (2.5)^2 + 2 \cdot C_1 + C_2$$

$$-18 = 8.33 - 4 + 2C_1$$

$$-18 - 8.33 + 4 = 2C_1$$

$$C_1 = -7.665$$

$$s = \frac{4t^2 - 2t^3}{12} - 7.665t + 17(9.665)$$

$$s = \frac{4(2.5)^2 - 2(2.5)^3}{12} - 7.665 \cdot 2.5 - 19.524$$

$$s = 85.33 - 16 - 19.524$$

$$s = 50.006m$$

$v = 70 - 0.055t^2$
 $s = 3m \quad a = v \cdot (10/3)$
 $2 \cdot 30 = \frac{dv}{dt} = -0.11$
 $24 = 5t^2 \quad a = (10 - 0.055t^2) \cdot (0.11)$
 $a = -25 - 0.0055t^2$
 $a = 5 = 15m$
 $a = -2(15) + 0.005(15)^2$
 $a = -30 + 1.125$
 $a = -15.125m$