



	→	↑
s		
u	$25 \cos 40$	$25 \sin 40$
v	a	b
a	0	-9.8
t	3	3

$$\rightarrow v = u + at \Rightarrow a = 25 \cos 40$$

$$\therefore a = 19.151$$

$$\uparrow v = u + at \Rightarrow b = 25 \sin 40 - 9.8 \times 3$$

$$\therefore b = -13.330$$

$$\therefore \text{Speed} = \sqrt{19.151^2 + (-13.330)^2} = 23.334 = 23 \text{ ms}^{-1} \text{ (2sf)}$$

(b)

	→	↑
s	80	h
u	$25 \cos 40$	$25 \sin 40$
v		
a	0	-9.8
t	t	t

$$\rightarrow s = ut + \frac{1}{2}at^2 \Rightarrow 80 = (25 \cos 40)t$$

$$\therefore t = 4.1773 \text{ s}$$

$$\uparrow s = ut + \frac{1}{2}at^2 \Rightarrow h = (25 \sin 40) \times 4.1773 - 0.5 \times 9.8 \times (4.1773)^2$$

$$= -18.376 = -18 \text{ m (2sf)}$$

\therefore the cliff is 18 m high (2sf)