1	$\frac{dh}{dt} = \frac{dh}{dV} \times \frac{dV}{dt}$ Where h is the height of the cone in mm, and V is the volume of the cone in mm^3 $\frac{dh}{dt} = \frac{dh}{dV} \times k$	M1
	$\frac{r}{h} = \frac{40}{160}$ $r = \frac{1}{4}h$	M1
	$V = \frac{1}{3}\pi r^2 h = \frac{1}{3}\pi\left(\frac{1}{4}h\right)^2 h = \frac{1}{48}\pi h^3$	M1
	$\frac{dV}{dh} = \frac{1}{16}\pi h^2$ $\frac{dh}{dV} = \frac{16}{\pi h^2}$	M1
	$\frac{dh}{dt} = \frac{16}{\pi h^2} \times k = \frac{16k}{\pi h^2}$	M1
	Interested in 10 seconds $V = k\ mm^3 s^{-1} \times 10\ s = 10k\ mm^3$	M1
	$\frac{1}{48}\pi h^3 = 10k$	M1
	$\pi h^3 = 480k$	M1
	$\frac{1}{2} = \frac{16k}{\pi h^2}$	M1
	$\pi h^2 = 32k$	M1
	$\pi h^3 = 480k$ $\pi h^2 = 32k$ $\Rightarrow h = 15$	M1
	$\pi \times 15^2 = 32k$ $k = \frac{225}{32}\pi$	B1
		[12]
		[12 marks]