

Acceleration

① - see graph on next page.

② uniform motion - moving at a constant speed in a straight line

non-uniform motion - the object is accelerating
(either changing speed or direction)

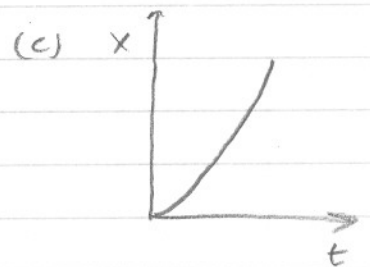
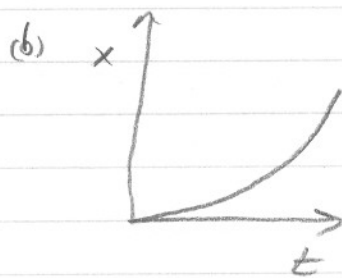
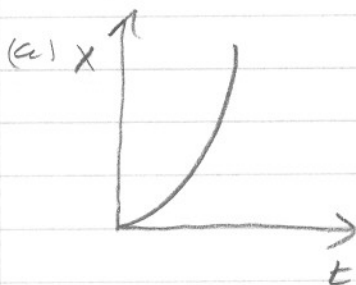
③ (a) $t = 6 \text{ s} = 0.00167 \text{ hours}$
$$\vec{a}_{av} = \frac{\vec{v}_f - \vec{v}_i}{\Delta t} = \frac{20 \text{ km/h} - 0}{0.00167 \text{ hours}} = 12000 \text{ km/h}^2 \text{ or } 0.9$$

(b) $t = 30 \text{ min} = 0.5 \text{ hours}$
$$\vec{a}_{av} = \frac{\vec{v}_f - \vec{v}_i}{\Delta t} = \frac{(60 \text{ km/h} - 10 \text{ km/h})}{0.5 \text{ h}} = 100 \text{ km/h}^2 \text{ or}$$

(c) $t = 6 \text{ s} = 0.00167 \text{ hours}$
$$\vec{a}_{av} = \frac{\vec{v}_f - \vec{v}_i}{\Delta t} = \frac{60 \text{ km/h} - 50 \text{ km/h}}{0.00167 \text{ h}} = 6000 \text{ km/h}^2 \text{ or}$$

(d) —

④ only sketch graphs are required.



Acceleration: Q1

