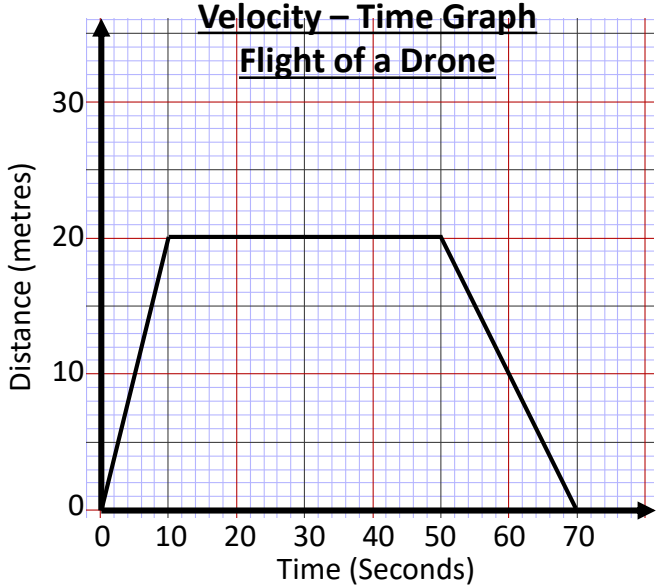
Timester Challenge

Gradient as a Rate of Change

Velocity – Time Graph
Flight of a Drone

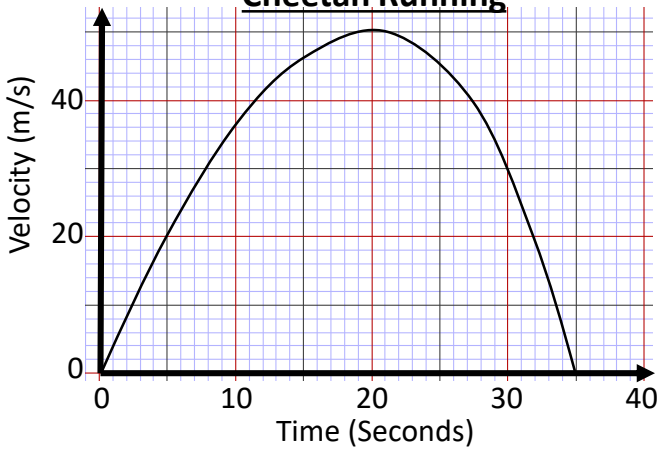


1) What is happening between 10 and 50 seconds?

2) Calculate the rate of change between 50 and 70 seconds.

Bronze

Velocity – Time Graph
Cheetah Running



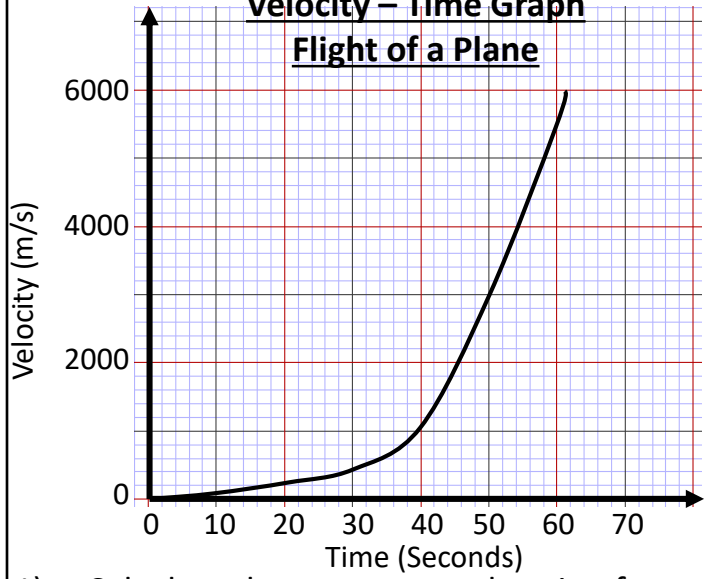
1) What is happening between 20 and 35 seconds?

2) Tick the statement which is true and give reasons for your answer.

- The cheetah accelerates quicker than it decelerates. ☐
- The cheetah accelerates and decelerates at the same pace. ☐
- The cheetah accelerates slower than it decelerates. ☐

Silver

Velocity – Time Graph
Flight of a Plane



1) Calculate the average acceleration for the first 50 seconds.

2) Estimate the acceleration of the car at 36 seconds.

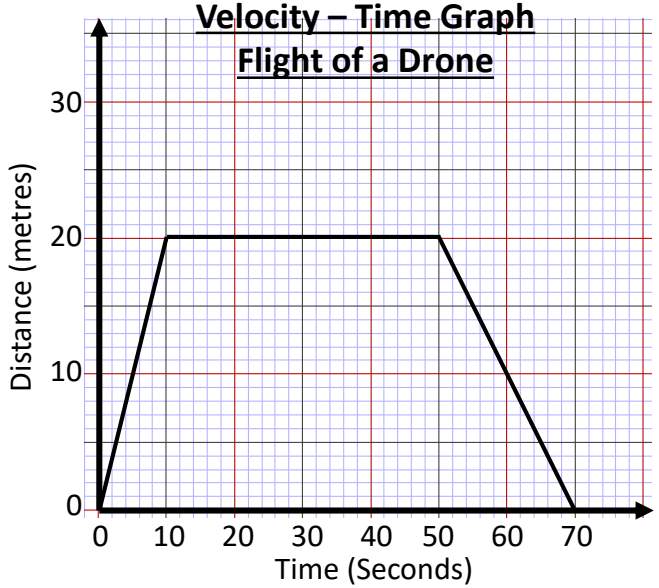
Gold

Timester Challenge

Gradient as a Rate of Change

Answers

Velocity – Time Graph
Flight of a Drone

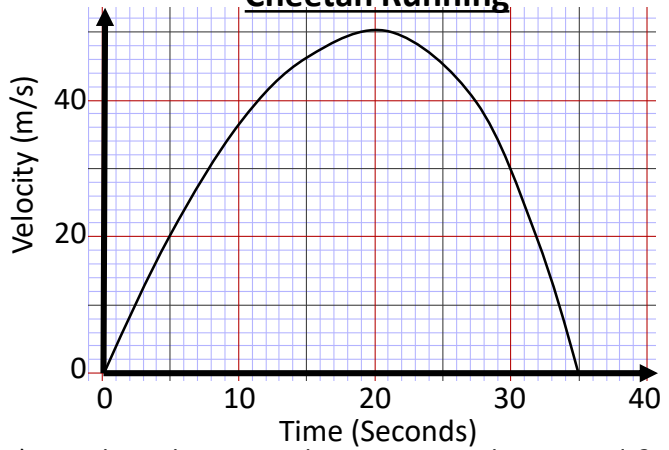


1) What is happening between 10 and 50 seconds?
The drone is not moving and is a set distance away from the controller.

2) Calculate the rate of change between 50 and 70 seconds.
Gradient = $\frac{change\ in\ y}{change\ in\ x} = \frac{20}{20} = 1m/s$

Bronze

Velocity – Time Graph
Cheetah Running



1) What is happening between 20 and 35 seconds?
The cheetah is slowing down, decelerating.

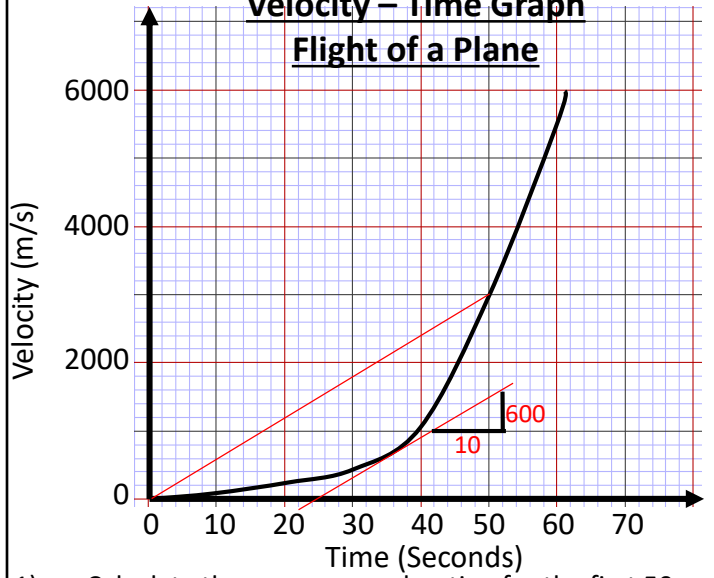
2) Tick the statement which is true and give reasons for your answer.

- The cheetah accelerates quicker than it decelerates. ☐
- The cheetah accelerates and decelerates at the same pace. ☐
- The cheetah accelerates slower than it decelerates. ☑

Acceleration = $\frac{50}{20} = 2.5ms^2$ Deceleration = $\frac{50}{15} = 3\frac{1}{3}ms^2$

Silver

Velocity – Time Graph
Flight of a Plane



1) Calculate the average acceleration for the first 50 seconds.
Acceleration = $\frac{3000}{50} = 60ms^2$

2) Estimate the acceleration of the car at 36 seconds.
(Range of answers acceptable dependent on the tangent drawing)
Acceleration = $\frac{change\ in\ y}{change\ in\ x} = \frac{600}{10} = 60ms^2$

Gold