Estimate and interpret the gradient of a curve

Maths

Mr Clasper

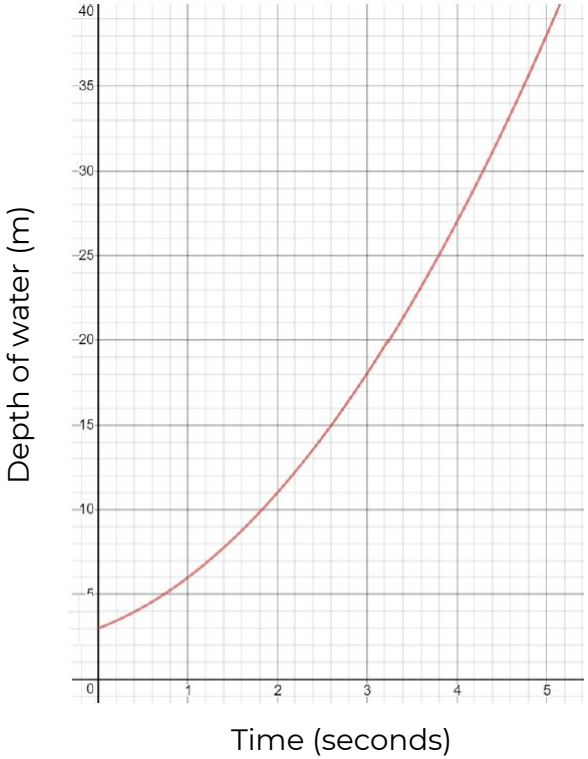
Estimate and interpret the gradient of a curve

1. A tank is filled with water.
The graph opposite shows the depth of water in the tank as time increases.

a) What is the depth of water in the tank at the start?

b) Estimate the gradient of the curve at t = 3 seconds.

c) What does the gradient tell you?



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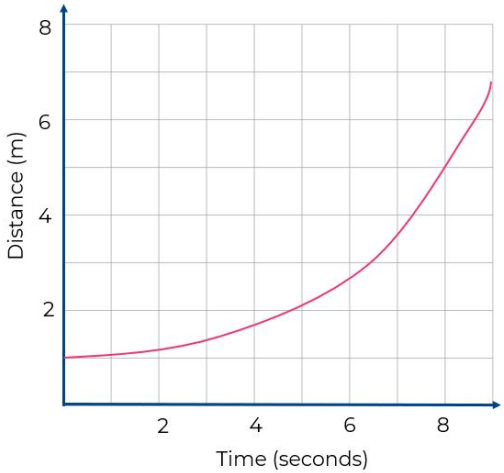
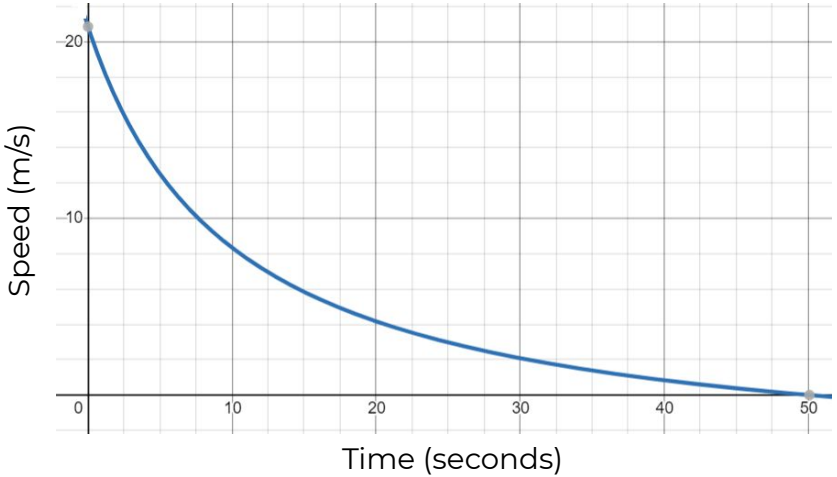
Estimate and interpret the gradient of a curve.

2. The graph shows the distance an object travels over time.



Estimate the speed of the object at 4 seconds.

3. The graph shows a train as it comes to a stop at a station.



Estimate the acceleration of the train at time t = 10 seconds.

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Answers

Estimate and interpret the gradient of a curve.

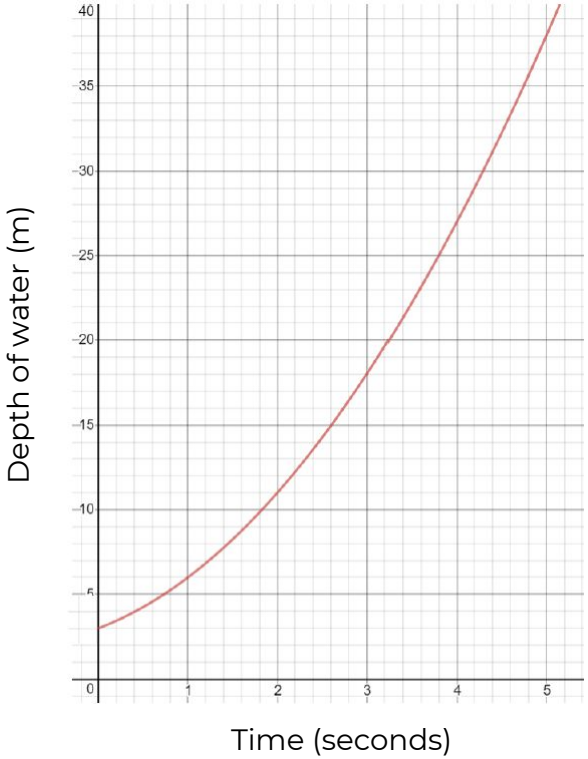
1. A tank is filled with water.
The graph opposite shows the depth of water in the tank as time increases.

a) What is the depth of water in the tank at the start? 3 metres.

b) Estimate the gradient of the curve at t = 3 seconds. ≈ 9

c) What does the gradient tell you?

The rate of change of the depth over time. In this case a gradient of 9 means at 3 seconds the depth is increasing a rate of 9 metres per second.



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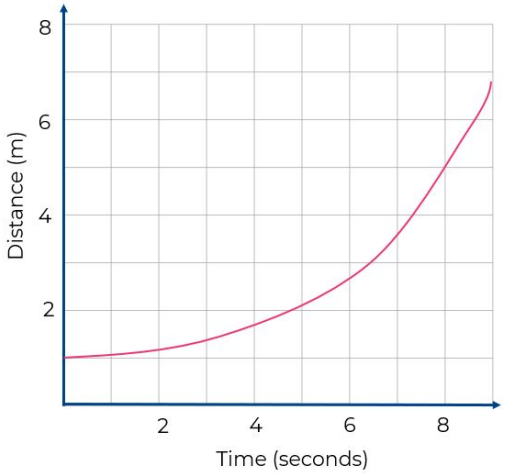
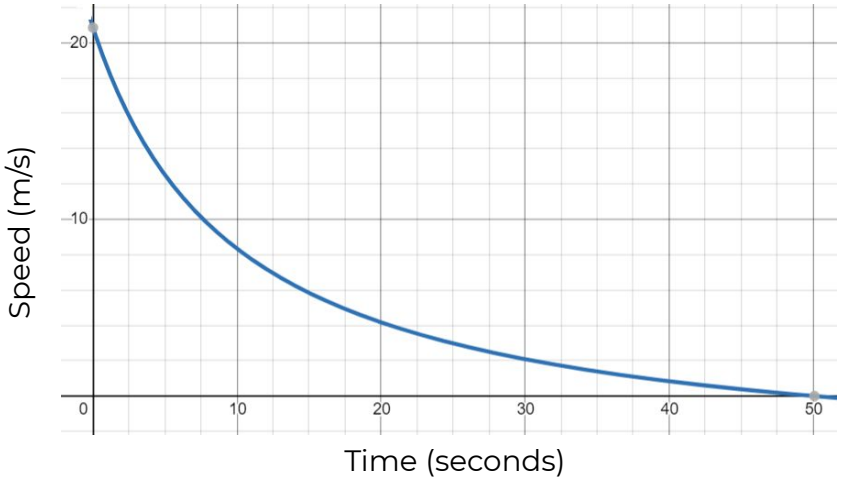


Estimate the speed of the object at 4 seconds. ≈ 0.35

3. The graph shows a train as it comes to a stop at a station.



Estimate the acceleration of the train at time t = 10 seconds. ≈ -0.625

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