Gradient of a curve

Exit ticket ANSWERS Name _____

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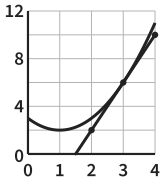

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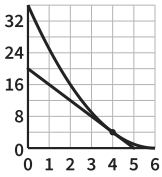
2 On a distance (m) against time (s) graph, the tangent at 3 s goes through (1, 2) and (5, 26). Find the speed at 3 s.

6 m/s

3 The graph shows the depth of water in a tank, in cm, after t minutes. Find how fast the depth is falling at 4 minutes.



4 cm per minute

The Maths Habit

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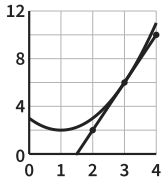

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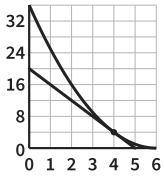

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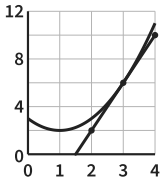

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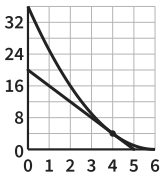

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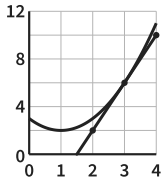

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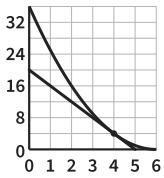

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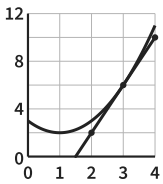

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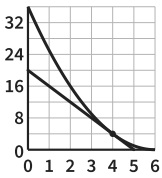

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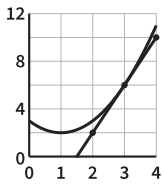

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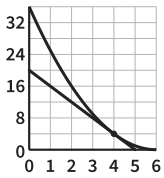


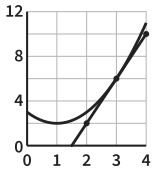
4 cm per minute

The Maths Habit

Exit ticket Gradient of a curve

NEXT LESSON

1 **The tangent at $x = 3$ is drawn. Find the gradient of the curve at $x = 3$.**



4

TESTS The gradient of a drawn tangent: up ÷ across from a step triangle

LOOK FOR *2* did 6 ÷ 3 with the point (3, 6): the gradient comes from the tangent, not the point

¼ across ÷ up: it is up ÷ across, 8 ÷ 2

FIX IT

A tangent goes through (1, 3) and (3, 13). Find its gradient. *5*

2 **On a distance (m) against time (s) graph, the tangent at 3 s goes through (1, 2) and (5, 26). Find the speed at 3 s.**

6 m/s

TESTS The gradient of a tangent as a speed, in m/s

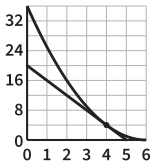
LOOK FOR *5.2 m/s* did 26 ÷ 5, distance ÷ time for one point: that is not the speed at 3 s

0.17 m/s across ÷ up, 4 ÷ 24

FIX IT

On a distance (m) against time (s) graph, a tangent goes through (1, 1) and (4, 22). Find the speed there. *7 m/s*

3 **The graph shows the depth of water in a tank, in cm, after t minutes. Find how fast the depth is falling at 4 minutes.**



4 cm per minute

TESTS A tangent sloping down: how fast something is falling, with its units

LOOK FOR *1 cm per minute* did 4 ÷ 4 with the point (4, 4), not the tangent

−4 cm per minute "falling at" already says it goes down: falling at 4 cm per minute

FIX IT

A tangent to a graph of temperature (°C) against time (minutes) goes through (0, 50) and (5, 20). How fast is the temperature falling? *6 °C per minute*