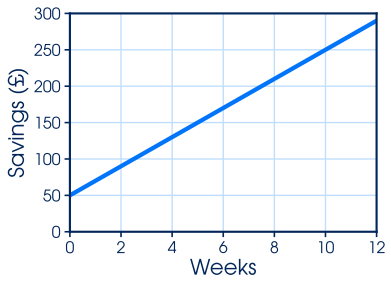
GCSE HIGHER · REVISION MAT 5

Rates of change from graphs

1 Find the rate at which the savings grow.



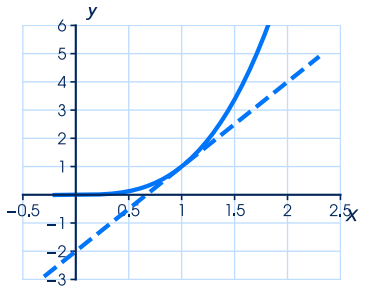
2 Find the average rate of change of $y = x^2 + 2x$ between $x = 0$ and $x = 3$.

3 Explain why a horizontal section of a graph shows a zero rate of change.

4 $N = 100 \times 3^t$

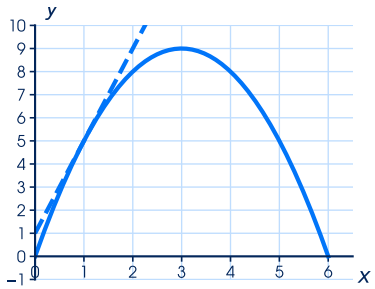
Find the average rate of change between $t = 1$ and $t = 2$.

5 A tangent is drawn to $y = x^3$ at $x = 1$.



Show that the gradient at $x = 1$ is 3.

6 Estimate the gradient of $y = 6x - x^2$ at $x = 1$.



7 Explain why the gradient of a curve changes but the gradient of a straight line does not.

8 $V = 2t^2 + t$

Estimate the rate of change at $t = 3$ using $t = 2.9$ and $t = 3.1$.

ANSWERS · REVISION MAT 5

Rates of change from graphs

1 $\frac{240}{12}$

£20 per week

2 $\frac{15}{3}$

5

3 **Its gradient is 0: the quantity is not changing.**

4 900 – 300

600 per unit time

5 Tangent through (0, –2) and (2, 4)

$\frac{6}{2} = 3$

6 Tangent through (0, 1) and (2, 9)

Gradient 4

7 **A curve's steepness changes from point to point.**

8 V(3.1) = 22.32, V(2.9) = 19.72

$\frac{2.6}{0.2}$

≈ 13

Mr&Mrs MATHS