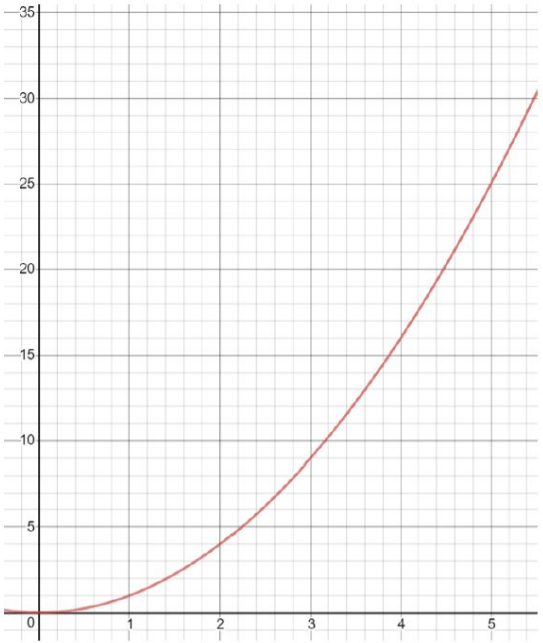
Estimate the gradient of a curve

Maths

Mr Clasper

Estimate the gradient of a curve

1. Here is the graph of $y = x^2$



a) Estimate the gradient of the curve at the point where x = 3

b) Estimate the gradient of the curve at the point where x = 4

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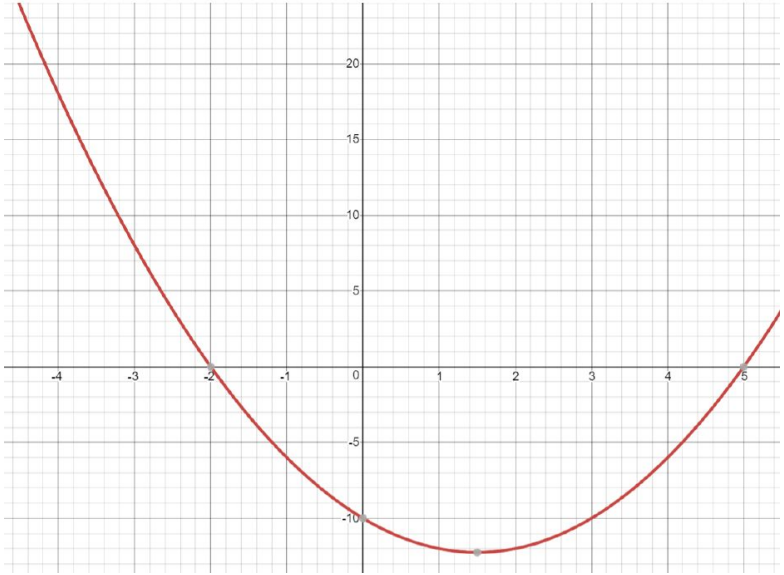
Estimate the gradient of a curve

2. Here is the graph of a function.



a) Max says the gradient of the curve at the point where x = 1 is equal to 3. Without working out the gradient how do you know Max is incorrect?

b) Estimate the gradient of the curve where (i) x = 4 and (ii) x = -3

c) Do you think the gradient at x = 10 will be greater than at x = 4? Explain your reasons.

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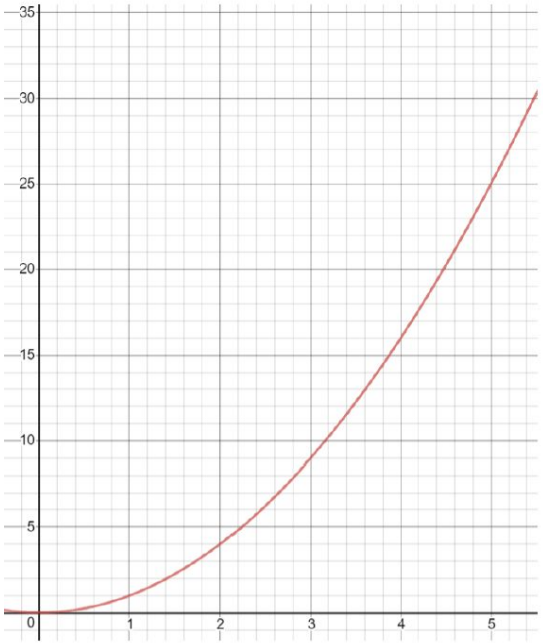
Answers

Estimate the gradient of a curve

1. Here is the graph of $y = x^2$



a) Estimate the gradient of the curve at the point where x = 3 ≈ 6

b) Estimate the gradient of the curve at the point where x = 4 ≈ 8

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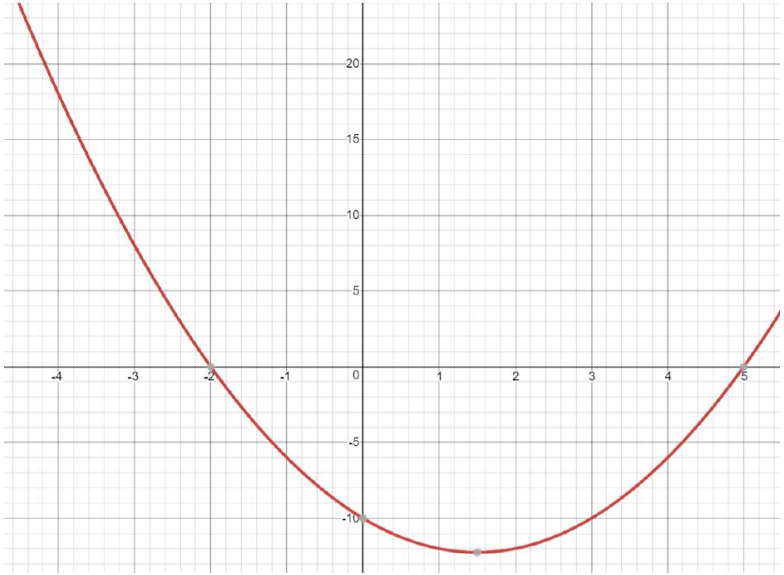
2. Here is the graph of a function.



a) Max says the gradient of the curve at the point where x = 1 is equal to 3.
Without working out the gradient how do you know Max is incorrect?

The gradient must be negative as the tangent has negative gradient.

b) Estimate the gradient of the curve where (i) x = 4 and (ii) x = -3 (i) ≈ 5 (ii) ≈ -9

c) Do you think the gradient at x = 10 will be greater than at x = 4? Explain your reasons.

Greater as the steepness of the graph is getting steeper as x increases.

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