

MINISTRY OF EDUCATION
CHRISTMAS TERM
SEPTEMBER 2020

GRADE 11

SUBJECT: MATHEMATICS

WEEK 4 LESSON 1

TOPIC: RELATIONS FUNCTIONS AND GRAPHS

SUB-TOPIC: Quadratic functions and graphs

OBJECTIVE:

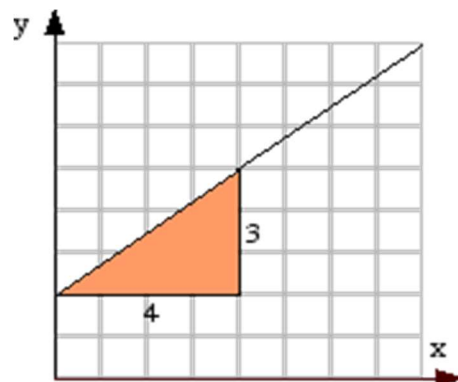
Draw and interpret graphs of a quadratic function to determine:
An estimate of the value of the gradient at a given point

Content:

Gradients

The **gradient of a straight line** is a measure of how steep it is.

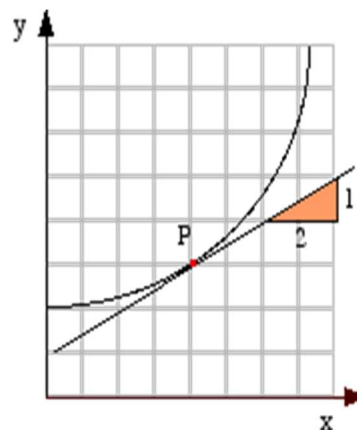
The **gradient of a straight line** is constant for any point on the line.



$$\text{Gradient of line} = \frac{\text{y-step}}{\text{x-step}} = \frac{3}{4}$$

The **gradient of a curve** at any point is given by the gradient of the tangent at that point.

The **gradient of a curve** is different at each point on the curve.



$$\text{Gradient of curve at P} = \text{Gradient of tangent at P} = \frac{1}{2}$$

The Gradient Function of $y = x^2$

Consider the curve $y = x^2$. Investigate the gradient at various points. (Worked out by finding the slope of the tangents as above.)

