GCSE (9-1) Maths Revision Poster

New Content to Higher Tier Only #2 of 2

Pearson Revise

Working with general iterative processes

R16

An **iterative process** is a process that is repeated many times.

You can use **repeated percentage change** to model problems involving growth and decay. The table shows how an investment of £40 000 grows with a **compound interest** rate of 4% per annum (per year).

The multiplier for a 4% increase is 1.04

This can be shown using a multiplier

(starting amount) × (multiplier)^n = final amount

where n is the number of years

→ $40\,000 \times 1.04^3 = 44\,994.56$

End of year	Balance
1	$40\,000 \times 1.04 = 41\,600$
2	$41\,600 \times 1.04 = 43\,264$
3	$43\,264 \times 1.04 = 44\,994.56$

Quadratic sequences

A24

Second differences

The second differences of a quadratic sequence are constant. The quadratic sequence with nth term $u_n = an^2 + bn + c$ has second differences equal to $2a$.

For example, here is the sequence $u_n = 3n^2 - n$

2 10 24 44 70 102 ...

+8 +14 +20 +26 +32

+6 +6 +6 +6

The second differences are constant and are equal to $2a = 2 \times 3 = 6$.

If the nth term of a sequence contains an n^2 term it is called a quadratic sequence

You can write the nth term of a quadratic sequence as

$u_n = an^2 + bn + c$

Solving quadratic inequalities in one variable

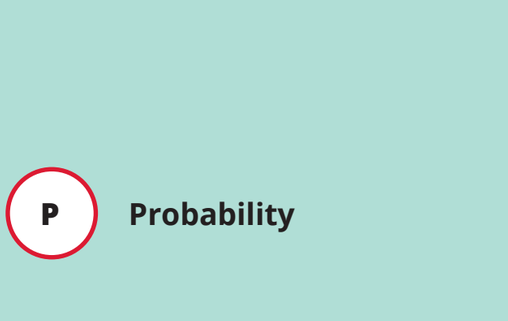
A22

To solve a quadratic inequality, first rearrange so that **0** is on one side, then factorise and sketch a graph.

- Solutions to **quadratic inequalities** can have more than one part. The solutions to $x^2 - 5x > 0$ are the x-values where the curve is **above** the x-axis. So the solution is $x < 0$ **or** $x > 5$.
- Quadratic inequalities involve an x^2 term. Use a sketch to solve quadratic inequalities.

$x^2 - 5x > 0$

$x(x - 5) > 0$



Interpret the gradient at a point on a curve as the instantaneous rate of change

R15

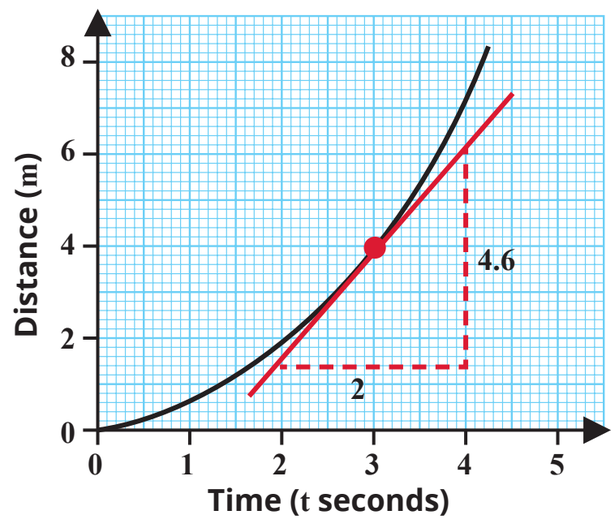
You can estimate the gradient of a curve at a given point by drawing a tangent to the curve at that point.

This straight line is the **tangent** to the curve at $t = 3$.

On a distance–time graph the **gradient** tells you the **speed**.

$\frac{4.6}{2} = 2.3$

so at 3 seconds the speed was approximately **2.3 m/s**.



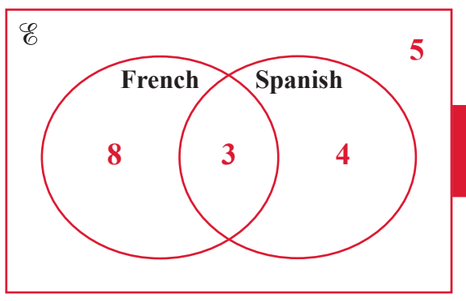
Use Venn diagrams to calculate and interpret conditional probabilities

P9

In a class of 20 students, 3 students study both French and Spanish, 11 study French and 5 students don't study either language.

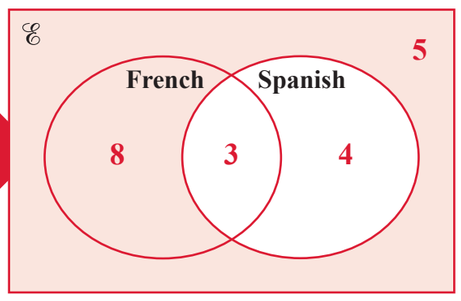
Conditional probability is a measure of the probability of events occurring if one event has already occurred.

Complete sample space



Event B occurs

Restricted sample space given that event B has occurred



One student is chosen at random

Given that this student studies Spanish, what is the probability that this student will also study French?

$= \frac{3}{3+4}$

$= \frac{3}{7}$

R Ratio A Algebra P Probability