

Year 10 Foundation - Mathematics

Links to careers/SMSC/Personal Development:

The National Career Service, Prospects, UCAS, STEM, MindTools, TeenLife and Mathematics Enrichment, UKMT Maths Challenge provides a wealth of information on various careers, including job profiles, salary expectations, and required qualifications. These resources can help Year 10 math students explore potential career paths, develop essential life skills, and foster personal growth. Encourage them to actively engage with these resources to prepare for their future academic and professional journeys. Year 10 work experience is about gaining valuable insights into the world of work, understanding the demands of different careers, and building skills and confidence that will serve you well in your future academic and professional endeavours.

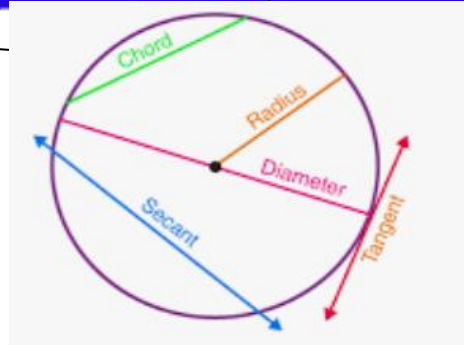
LEARNING JOURNEY



Circles

End of year Assessment

End of year review



Laws of Indices

Laws of indices provide us with rules for simplifying calculations or expressions involving powers of the same base. They are:

$$a^m \times a^n = a^{m+n}$$

$$a^{-m} = \frac{1}{a^m}$$

$$a^m \div a^n = a^{m-n}$$

$$a^{\frac{m}{n}} = \sqrt[n]{a^m}$$

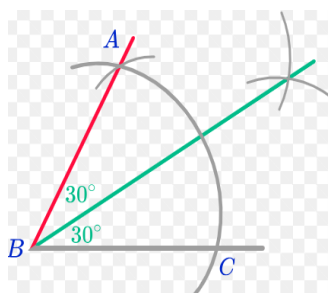
$$a^0 = 1$$

GCSE Higher only

$$(a^m)^n = a^{m \times n} = a^{mn}$$

Indices and standard form

Home learning : Weekly on SPARX



Constructions, loci and bearings

Solving Quadratic Equations (with re-arrangement)

Solve the following Quadratic Equation by factoring:

$$x^2 + 11x + 34 = 4$$

$$x^2 + 11x + 30 = 0$$

$$(x + 5)(x + 6) = 0$$

$$\therefore x + 5 = 0 \text{ or } x + 6 = 0$$

$$\therefore x = -5 \text{ or } x = -6$$

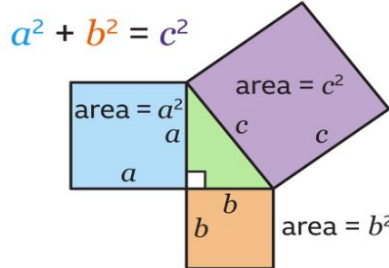
Example

To solve a Quadratic Equation by factoring, the right-hand side must equal 0. So, subtract 4 from both sides of the equation.

Quadratic equations

Plans and elevation

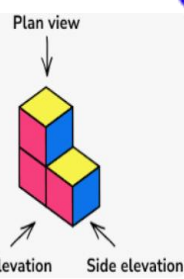
Multiplicative reasoning



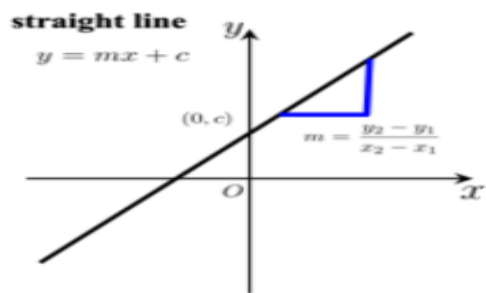
Pythagoras and trigonometry

2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10
6	7	8	9	10	11
7	8	9	10	11	12

probability



Straight-line graphs



Ratio

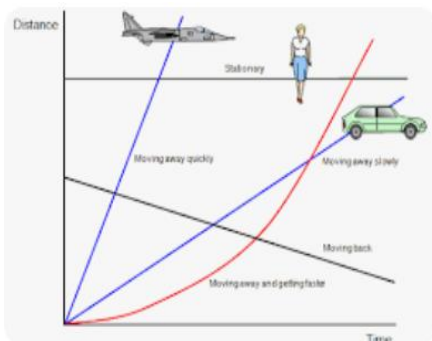


Proportion

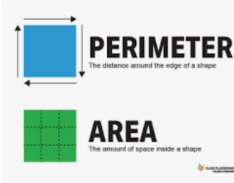
$$\frac{x}{y}$$

Home learning : Weekly on SPARX

Real-life graphs



Perimeter, area & volume



Year 10 learning summary: Rationale



In Year 10 we will explore the following:

Algebra Fundamentals- Geometry and Trigonometry, Statistics and Probability. Review and Preparation-Review all topics covered during the year. Practice with past exam papers and sample questions. Work on time management skills for exams.

Receive feedback on progress and areas for improvement. Set goals for Year 11 mathematics and beyond. By following this Year 10 learning journey, students will have a comprehensive understanding of fundamental mathematical concepts, strong problem-solving skills, and the necessary preparation for Year 11 and beyond, whether they plan to continue studying mathematics at an advanced level or pursue other academic or career pathways.