

# **MATHEMATICS FIRST TERM EXAMINATION PORTION- JAN 2022**

## **YEAR 11**

**PAPER 1 - 1MA1/1H – NON CALCULATOR – 80 MARKS - 1 ½ HOURS**

**PAPER 2 - 1MA1/2H – CALCULATOR – 80 MARKS - 1 ½ HOURS**

**PAPER 3 - 1MA1/3H – CALCULATOR – 80 MARKS - 1 ½ HOURS**

UNIT 13 – More Trigonometry

UNIT 19 – Proportion and Graphs

UNIT 17 – More Algebra

UNIT 14 – Further Statistics

### **REVISION UNITS**

UNIT 1 – Number (Excluding 1.1 )

UNIT 2 – Algebra

UNIT 3 – Interpreting and Representing Data

UNIT 4 – Fractions and Percentages

UNIT 5 – Angles and Trigonometry

UNIT 6 – Graphs

UNIT 8 – Transformations and Constructions

UNIT 9 – Equations and Inequalities

UNIT 11 – Multiplicative Reasoning

UNIT 12 – Similarity and Congruence

UNIT 15 – Equations and Graphs

A formula sheet will be given for the Examination

**Higher Tier Formulae Sheet**

**Perimeter, area and volume**

Where  $a$  and  $b$  are the lengths of the parallel sides and  $h$  is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2} (a + b) h$$

Volume of a prism = area of cross section  $\times$  length

Where  $r$  is the radius and  $d$  is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

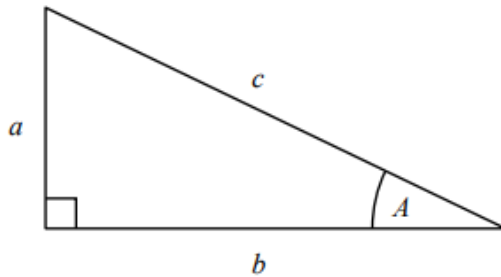
**Quadratic formula**

The solution of  $ax^2 + bx + c = 0$

where  $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

**Pythagoras' Theorem and Trigonometry**

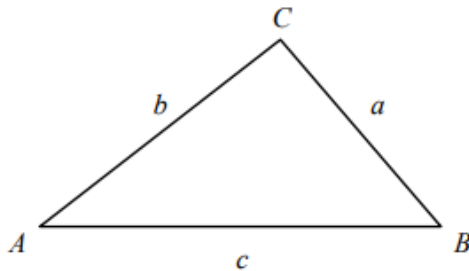


In any right-angled triangle where  $a$ ,  $b$  and  $c$  are the length of the sides and  $c$  is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle  $ABC$  where  $a$ ,  $b$  and  $c$  are the length of the sides and  $c$  is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$



In any triangle  $ABC$  where  $a$ ,  $b$  and  $c$  are the length of the sides:

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area of triangle} = \frac{1}{2} a b \sin C$$

**Compound Interest**

Where  $P$  is the principal amount,  $r$  is the interest rate over a given period and  $n$  is number of times that the interest is compounded:

$$\text{Total accrued} = P \left( 1 + \frac{r}{100} \right)^n$$

**Probability**

Where  $P(A)$  is the probability of outcome  $A$  and  $P(B)$  is the probability of outcome  $B$ :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$