JOHN EDMONDSON HIGH SCHOOL
Assessment Notification

Faculty: Mathematics Course: Mathematics Intermediate (Core + Some Paths) Year: 9

Assessment Task: 3

Assessment Weighting: 20% Due: Term 3, Week 5 Date: Friday 23rd August 2024

Task Type: Hand in Task ☐ In Class Task ☒ Practical Task ☐

Outcomes assessed (NESA)
MAO-WM-01, MA5-TRG-C-01, MA5-TRG-C-02, MA5-ALG-C-01, MA5-PRO-C-01, MA5-PRO-P-01 Please Note: further information about these outcome codes can be found on the NESA Website
Task Description/Overview
This in class written examination will consist of short answer questions. No reference material is allowed during the examination Time allowed: 45 Minutes + 2 minutes reading time Equipment Required: Black Pen(s) and a NESA approved calculator
Detailed Assessment Task Description
Topics to be assessed: 1. Trigonometry A and B 2. Algebraic Techniques A 3. Probability A and B (path) For further details, refer to the attached documents.

Test/Examination Structure	
Section Description	**Marks Available**
Trigonometry A and B	17
Algebraic Techniques A	17
Probability A and B (path)	16
Total Marks for this task	**50**

Satisfactory completion of courses
A course has been satisfactorily completed when the student has:
- Followed the course developed/endorsed by the NSW Educational Standards Authority (NESA).
- Applied himself/herself with diligence and sustained effort to the set tasks and experiences provided in the course.
- Achieved some or all the course outcomes.

TRIGONOMETRY A and B

Trigonometry A

Demonstrate and explain the constancy of trigonometric ratios for a given angle in right-angled triangles

- Identify and label the hypotenuse, adjacent and opposite sides with respect to a given angle in a right-angled triangle in any orientation
- Define the sine, cosine and tangent ratios for angles in right-angled triangles and use trigonometric notation
- Identify the sine, cosine and tangent ratios in a right-angled triangle
- Verify the constancy of the sine, cosine and tangent ratios for a given angle by applying knowledge of similar right-angled triangles
- Find approximations of the trigonometric ratios for a given angle
- Find the size of an angle given one of the trigonometric ratios for the angle using digital tools

Apply trigonometry to solve right-angled triangle problems

- Apply trigonometry to find the lengths of unknown sides in right-angled triangles with a given angle including angles in degrees and minutes
- Apply trigonometry to find the size of unknown angles in right-angled triangles including in degrees and minutes
- Solve a variety of practical problems involving trigonometric ratios in right-angled triangles

Trigonometry B

Solve right-angled triangle problems involving angles of elevation and depression

- Identify and describe angles of elevation and depression
- Solve practical problems involving angles of elevation and depression

Solve right-angled triangle problems involving bearings

- Identify and interpret true bearings and compass bearings
- Explain the difference between true bearings and compass bearings and convert between them
- Solve practical problems involving bearings

ALGEBRAIC TECHNIQUES A

Algebraic techniques A

Apply the 4 operations to simplify algebraic fractions with numerical denominators

- Simplify expressions that involve algebraic fractions with numerical denominators

Apply the distributive law to the expansion of algebraic expressions, and collect like terms where appropriate

- Expand algebraic expressions, including those with negative coefficients
- Expand and simplify algebraic expressions by removing grouping symbols and collecting like terms where appropriate
- Expand binomial products algebraically using the distributive law or consider areas of rectangles as a possible method of expansion

PROBABILITY A AND B

Probability A

Describe multistage chance experiments involving independent and dependent events

- Explain the difference between dependent and independent events in experiments involving 2 stages
- Explain how the probability of independent and dependent events differs in relation to replacement

Solve problems for multistage chance experiments

- Record all possible outcomes for multistage chance experiments
- Determine the probabilities of outcomes for multistage independent events using P(A and B) = P(A) x P(B), where necessary
- Determine the probabilities of outcomes for multistage dependent events
- Associate complementary events with probabilities in multistage chance experiments

Design and use simulations to model and examine situations involving probability

- Design and conduct a probability simulation, modelling probabilities of events, using digital tools
- Record and use the results of a probability simulation to predict future events
- Apply reasoning to evaluate the simulation and its related outcomes

Probability B (Path)

Solve problems involving Venn diagrams and 2-way tables

- Represent and interpret data in Venn diagrams for mutually exclusive and non-mutually exclusive events
- Construct Venn diagrams to represent all possible combinations of 2 attributes from given or collected data
- Interpret data in 2-way tables to represent relationships between attributes
- Construct 2-way tables to represent the relationships between attributes
- Convert between representations of the relationships between 2 attributes in Venn diagrams and 2-way tables
- Define a set as a collection of distinct objects
- Use Venn diagrams, set language and notation for events, including $\bar{A}$ (or A' or A^c) for the complement of an event A, $A \cap B$ for 'A and B' (the intersection of events A and B) and $A \cup B$ for 'A or B' (the union of events A and B) and recognise mutually exclusive events

Use the language, 'if … then', 'given', 'of' and 'knowing that', to examine conditional statements and identify common mistakes in interpreting the language

- Calculate the probabilities of events where a condition restricts the sample space
- Describe the effect of a given condition on the sample space
- Identify conditional statements used in descriptions of chance situations
- Explain the validity of conditional statements when describing chance situations, referring to dependent and independent events
- Identify and explain common misconceptions relating to chance experiments

Describe mutually and non-mutually exclusive events using specific language and calculate related probabilities

- Explain the difference between mutually exclusive and non-mutually exclusive events
- Describe compound events using the terms *inclusive or* and *exclusive or*
- Describe non-mutually exclusive events using the terminology *and*, *inclusive or* and *exclusive or*
- Describe events using the terms *at least*, *at most*, *not* and *and*
- Calculate the probability of compound events using strategies including Venn diagrams and 2-way tables