

Trial Examination 2021

HSC Year 12 Mathematics Standard 2

General Instructions

- Reading time – 10 minutes
- Working time – 2 hours and 30 minutes
- Write using black pen
- Calculators approved by NESA may be used
- A reference sheet is provided at the back of this paper
- For questions in Section II, show relevant mathematical reasoning and/or calculations

Total Marks: 100

Section I – 15 marks (pages 2–8)

- Attempt Questions 1–15
- Allow about 25 minutes for this section

Section II – 85 marks (pages 9–38)

- Attempt Questions 16–40
- Allow about 2 hours and 5 minutes for this section

Students are advised that this is a trial examination only and cannot in any way guarantee the content or the format of the 2021 HSC Year 12 Mathematics Standard 2 examination.

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SECTION I

15 marks

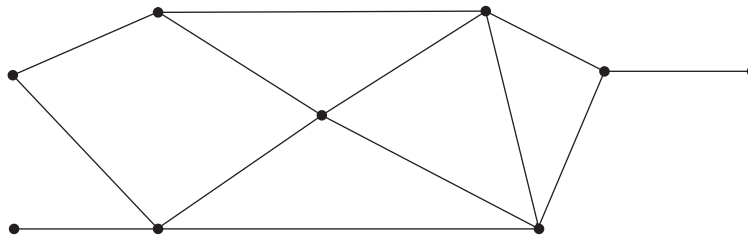
Attempt Questions 1–15

Allow about 25 minutes for this section

Use the multiple-choice answer sheet for Questions 1–15.

- 1 A video game console costs \$389, inclusive of 10% goods and services tax (GST). What is the price of the video game excluding GST, correct to the nearest dollar?
- A. \$39
 - B. \$43
 - C. \$350
 - D. \$354

- 2 A network diagram is shown.

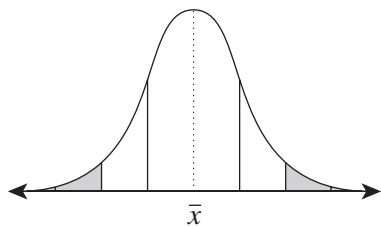


The number of vertices of odd degree is

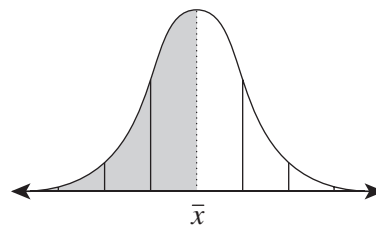
- A. 2
- B. 4
- C. 6
- D. 9

- 3 For a normally distributed dataset, which of the following graphs could represent the percentage of scores that have a z -score greater than -2 ?

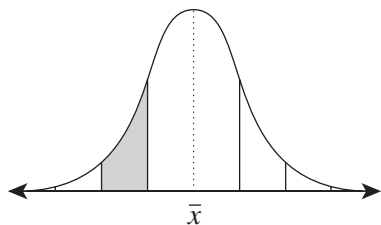
A.



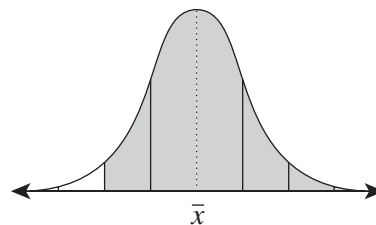
B.



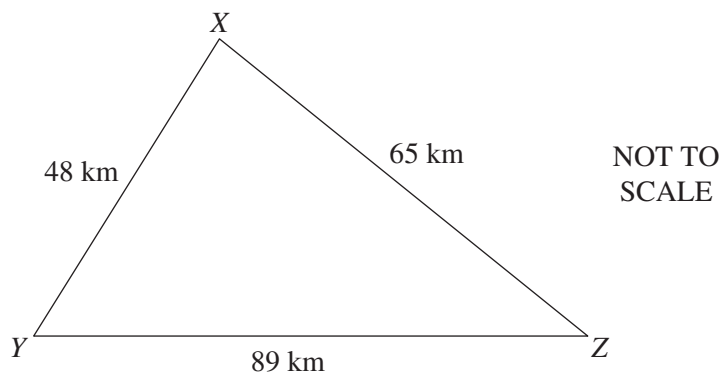
C.



D.



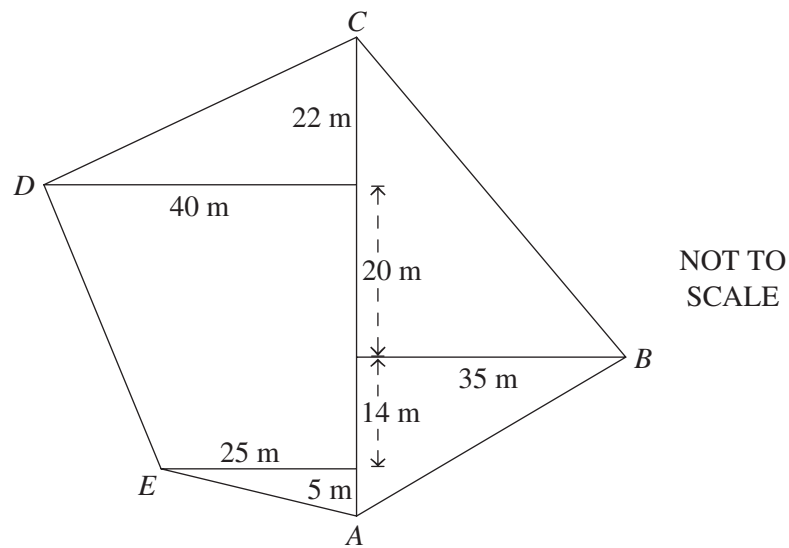
- 4 The diagram shows the distances between towns X, Y and Z.



What is the value of $\angle YXZ$, correct to the nearest minute?

- A. $98^{\circ}15'$
 B. $102^{\circ}53'$
 C. $112^{\circ}50'$
 D. 120.8°

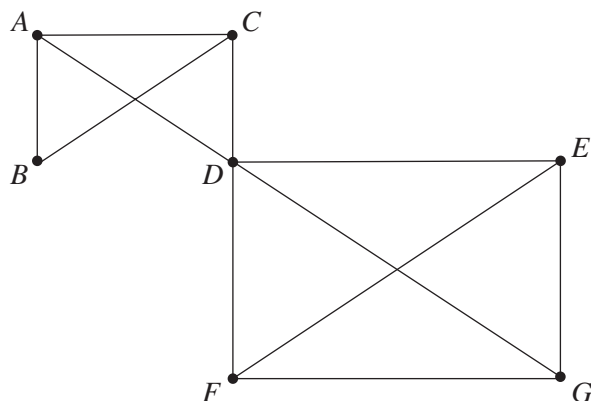
- 5 The field diagram of a local park is shown.



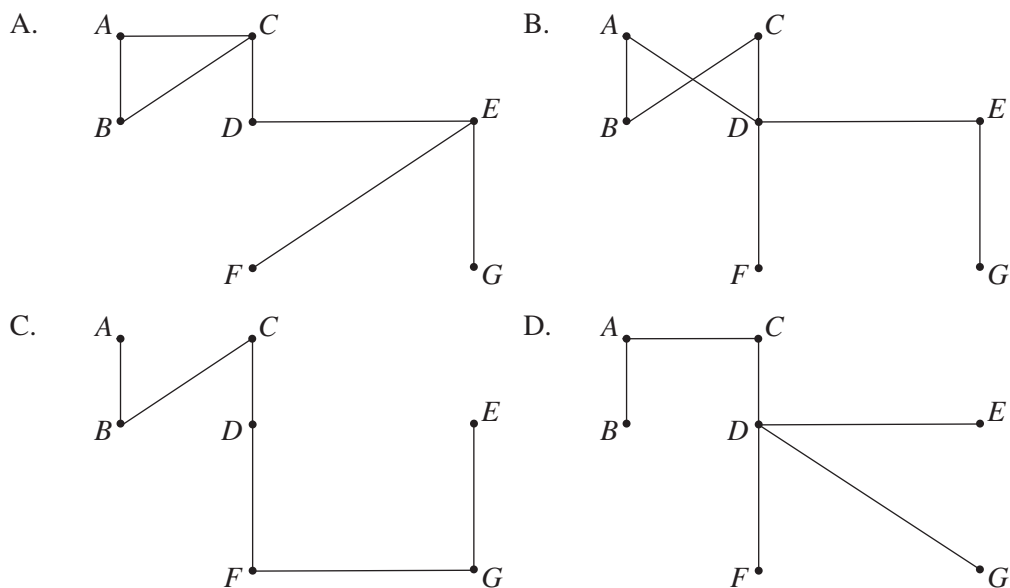
What is the total area of the field $ABCDE$?

- A. 2675 m^2
 - B. 2950 m^2
 - C. 3140 m^2
 - D. 3743 m^2
- 6 The current world record for the men's 100-metre sprint is 9.58 seconds set by Usain Bolt, a Jamaican sprinter, in 2009.
- Which of the following expresses the rate of Bolt's record-setting sprint in kilometres per hour, correct to one decimal place?
- A. 0.6 km/h
 - B. 11.5 km/h
 - C. 37.6 km/h
 - D. 39.5 km/h

7 A network diagram is shown.



Which of the following could be both a spanning tree AND a path for the network diagram?

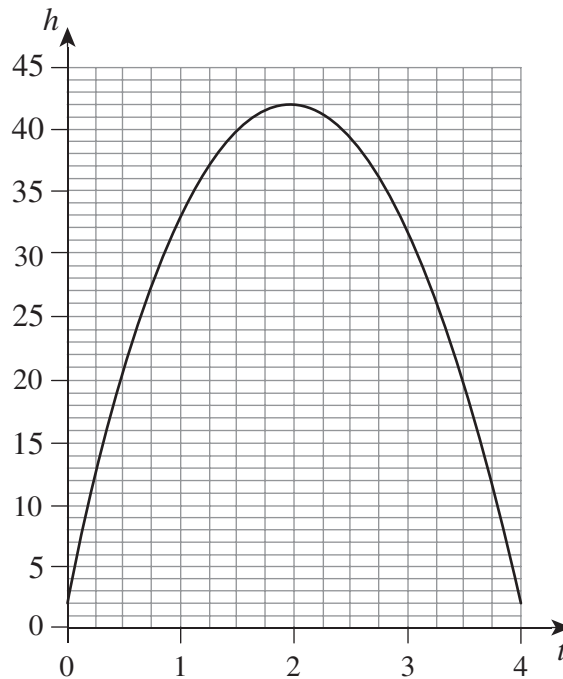


8 Jackson bought a portfolio of 1400 shares for \$25 200 and received an annual dividend of \$1.35 per share.

What is the dividend yield per share?

- A. 3.4%
- B. 7.5%
- C. 9.6%
- D. 13.3%

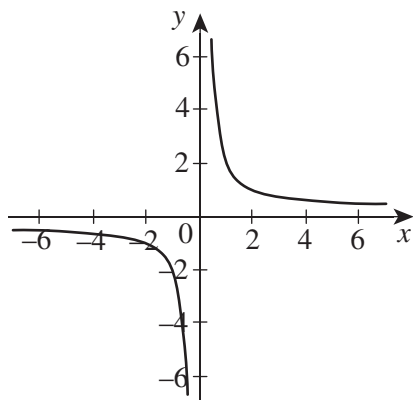
- 9 Alia throws a ball into the air. The height of the ball in metres, h , can be modelled by the quadratic equation $h = 2 + 40t - 10t^2$, where t is the time in seconds. The graph of this equation is shown.



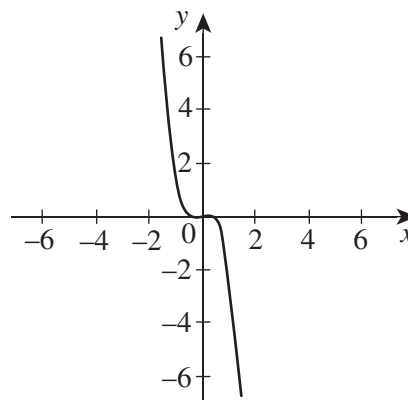
- The ball is approximately 20 metres above the ground
- at 0.5 seconds.
 - at 1 second and 3 seconds.
 - at 0.5 seconds and 3.5 seconds.
 - between 1 second and 3.5 seconds.
- 10 San Francisco is located at $(38^\circ\text{N}, 122^\circ\text{W})$. City X is located 40° to the South and 50° to the East of San Francisco.
What are the coordinates of City X?
- $(78^\circ\text{N}, 172^\circ\text{E})$
 - $(78^\circ\text{S}, 72^\circ\text{W})$
 - $(2^\circ\text{N}, 172^\circ\text{E})$
 - $(2^\circ\text{S}, 72^\circ\text{W})$
- 11 Juan's online banking security code must consist of two letters (A–Z) followed by two digits (0–9). Letters and digits can be repeated.
If Juan chooses a code ending with a 7, which of the following expressions gives the correct number of codes possible?
- $(26 \times 2) + (10 \times 9)$
 - $26 \times 2 \times 10 \times 9$
 - $26^2 \times 10$
 - $26^2 \times 10 \times 7$

- 12** Hana purchased a speaker online for $\$(x + 15)$. She later sold it for $\$(x - 25)$. Which of the following statements is true?
- A. Hana made a profit of $\$(x + 40)$.
 B. Hana made a profit of $\$(x - 40)$.
 C. Hana made a loss of $\$40$.
 D. Hana made a loss of $\$(x - 40)$.
- 13** Chloe buys a home security system on terms. The system costs $\$1480$; Chloe pays a 20% deposit and borrows the balance. A flat-rate interest is charged at 12% per annum on the amount borrowed. Chloe makes fortnightly repayments over two years. How much is Chloe's fortnightly repayment?
- A. $\$28.23$
 B. $\$35.29$
 C. $\$36.66$
 D. $\$57.25$
- 14** Which of the following could represent the graph of the function $y = \frac{2}{x}$?

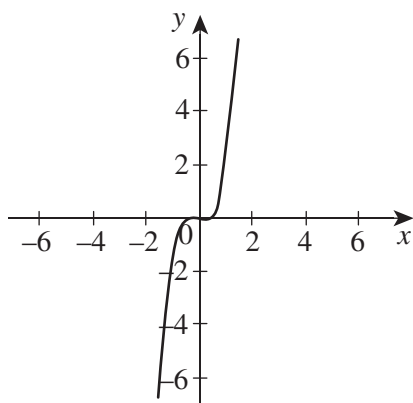
A.



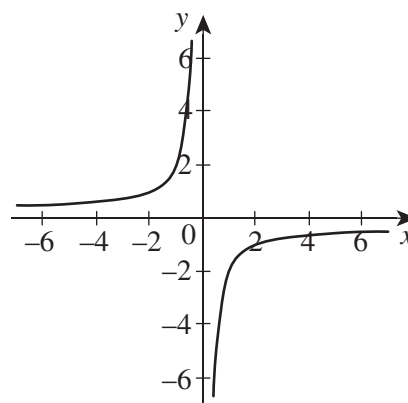
B.



C.



D.



- 15** The volume of a gas at constant temperature varies inversely to the pressure.
What is the effect on the volume of a gas when the pressure is tripled?
- A. The volume stays the same.
 - B. The volume is divided by 3.
 - C. The volume is tripled.
 - D. The volume is cubed.

HSC Year 12 Mathematics Standard 2

Section II Answer Booklet 1

Section II

85 marks

Attempt Questions 16–40

Allow about 2 hours and 5 minutes for this section

Booklet 1 – Attempt Questions 16–30 (48 marks)

Booklet 2 – Attempt Questions 31–40 (37 marks)

Instructions

- Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.
 - Your responses should include relevant mathematical reasoning and/or calculations.
 - Extra writing space is provided on pages 24–26 of Booklet 1. If you use this space, clearly indicate which question you are answering.
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Please turn over

Question 16 (1 mark)

Solve the equation $\frac{y}{3} - 13 = 8$.

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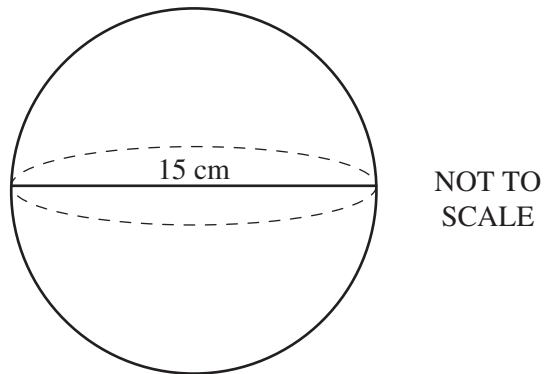
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Question 17 (2 marks)

The sphere has a diameter of 15 cm.

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Calculate the volume of the sphere in cubic centimetres. Give your answer correct to three significant figures.

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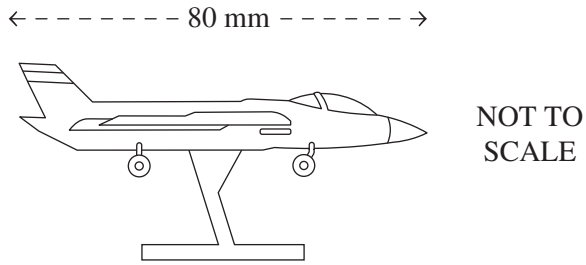
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Question 18 (2 marks)

Harley builds a model of a fighter aircraft. The model is made to a scale of 1 : 250.



- (a) The length of the model is 80 mm. **1**
 What is the length of the real aircraft in metres?

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- (b) The real aircraft has a square logo on its wings. The logo measures 130 cm by 130 cm. **1**
 Harley wants to paint a scaled copy of the logo on his model.
 What dimensions should Harley use for the logo on his model? Give your answer
 in millimetres.

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Question 19 (4 marks)

The table shows the number of standard drinks in three types of beer available at a restaurant: full-strength, mid-strength and low-strength. The restaurant sells the beer in small and large glasses.

Number of standard drinks

	<i>Full-strength</i>	<i>Mid-strength</i>	<i>Low-strength</i>
<i>Small glass</i>	1.1	0.8	0.6
<i>Large glass</i>	1.6	1.2	0.9

Geoff is 24 years old and weighs 78 kg. He has dinner with friends at the restaurant, where he drinks three large glasses of full-strength beer and one small glass of mid-strength beer between 7:30 pm and 11:30 pm.

The following formula is used to calculate an estimate for blood alcohol content (BAC) for males.

$$\text{BAC}_{\text{male}} = \frac{10N - 7.5H}{6.8M}$$

- (a) Calculate Geoff's BAC at 11:30 pm, correct to three decimal places. 2

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- (b) The number of hours required for Geoff to reach a BAC of 0 after he stops consuming alcohol is given by the following formula. 2

$$\text{time} = \frac{\text{BAC}}{0.015}$$

How long will it take for Geoff's BAC to reach zero? Give your answer in hours and minutes.

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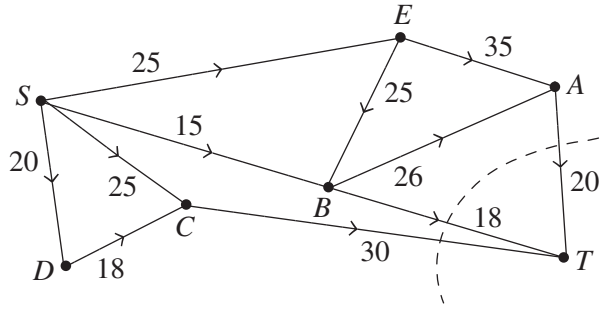
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Question 20 (4 marks)

In the directed network, the source is represented by S and the sink is represented by T .



- (a) Find the capacity of the minimum cut shown above. **1**

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- (b) Show that the maximum flow is equal to the minimum cut. **2**

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- (c) What is the outflow at B ? **1**

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Question 21 (3 marks)

Jacinta has a credit card that charges a simple interest rate of 21% per annum. The credit card does not have an interest-free period, and interest is charged up to and including the date of payment.

During one weekend, Jacinta makes the following transactions.

	<i>Transaction</i>	<i>Amount (\$)</i>
<i>13 January</i>	Public transport card top-up	30.00
<i>18 January</i>	GK Drive driving lesson	89.00

- (a) Calculate the daily interest of Jacinta’s credit card as a percentage. Give your answer correct to three decimal places. **1**

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- (b) Jacinta is due to pay her account in full on 9 February. **2**
 What will be the total interest payable on Jacinta’s transactions?

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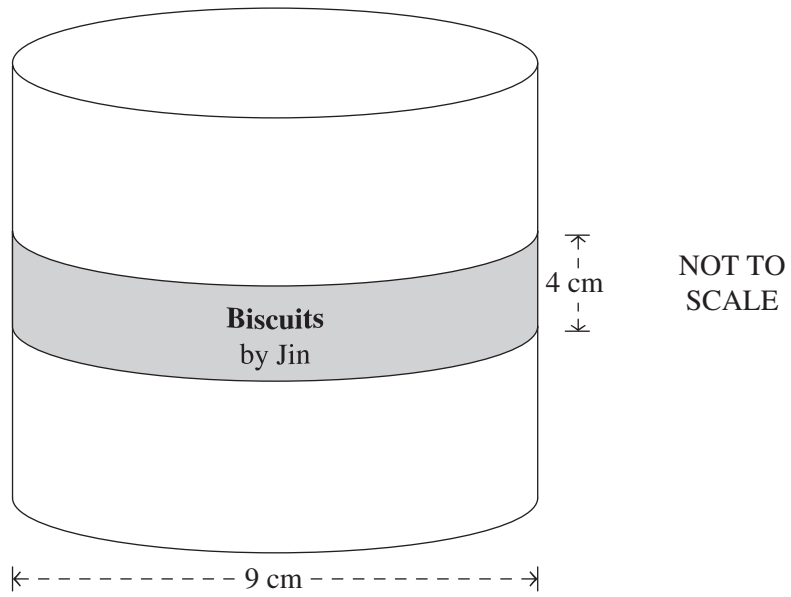
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Question 22 (2 marks)

Jin makes paper labels for the tins of his home-made biscuits. Each tin is in the shape of a cylinder with a diameter of 9 cm. Each label is 4 cm wide and wraps all the way around a tin with no overlap.

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Calculate the area of the label. Give your answer correct to the nearest square centimetre.

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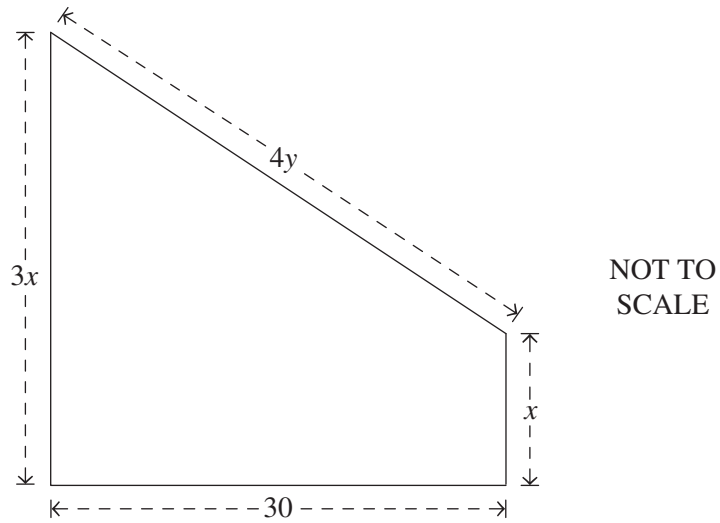
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Question 23 (3 marks)

Tavi is a farmer. She wants to build an enclosure for her cows, as shown in the diagram, using recycled timber.



All measurements are in metres.

- (a) Express the perimeter of the enclosure in terms of x and y . Give your answer in the simplest form. 1

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- (b) If Tavi uses 102 m of timber to build the enclosure, show that $y = 18 - x$. 2

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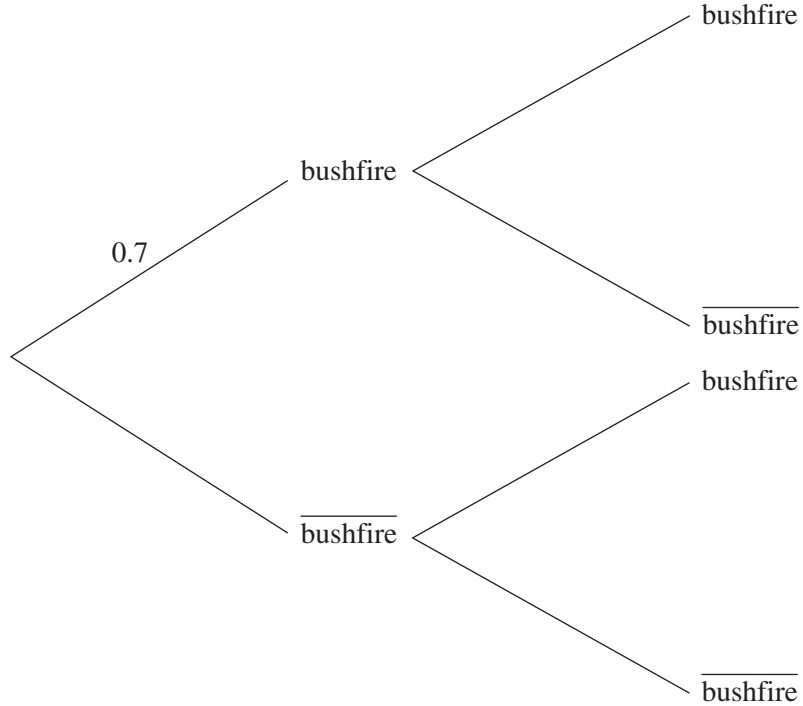
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Question 24 (4 marks)

Therese lives in a regional area at risk of bushfires. During a high-risk weekend, the probability of a bushfire in the area on any day is 0.7.

- (a) Complete the probability tree diagram below by labelling the probabilities on each branch. 2



- (b) Calculate the percentage probability that there are no bushfires over the weekend. 2

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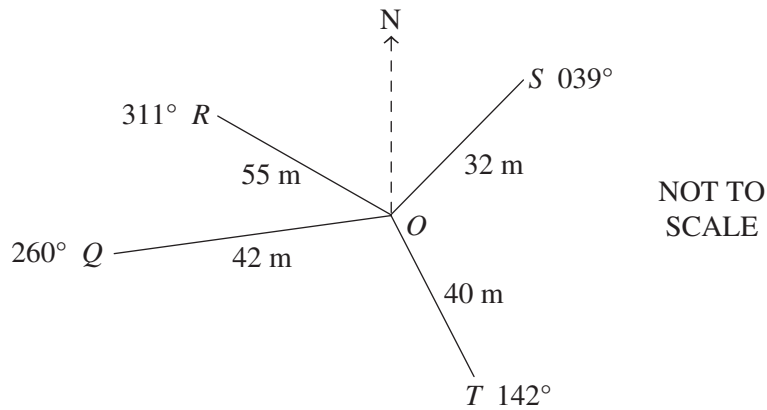
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Question 25 (5 marks)

A compass radial survey of a block of land is shown.



- (a) Show that the size of $\angle ROS$ is 88° . **1**

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- (b) Calculate the area of triangle ROS , correct to the nearest square metre. **2**

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- (c) A property developer plans to build a supermarket on the entire area of ROS . To do this, the developer needs to lay a concrete slab that is 20 cm thick over this area. **2**
 Calculate the volume of concrete required for the slab, correct to the nearest cubic metre.

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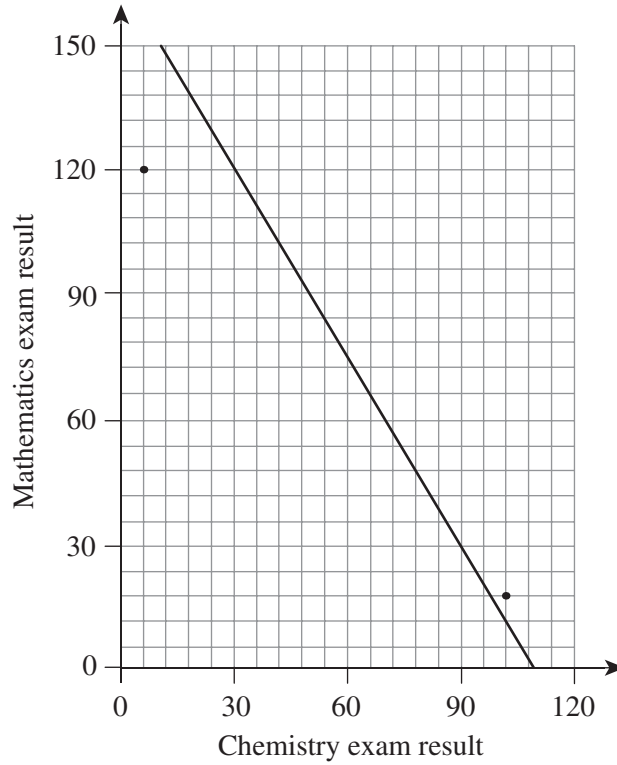
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Question 26 (3 marks)

The Mathematics and Chemistry exam results for a group of students are recorded in the scatterplot. A line of best fit was drawn as shown.



- (a) Calculate the gradient of the line of best fit. **1**

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- (b) Identify the correlation between the Mathematics and Chemistry exam results. **2**

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Question 27 (3 marks)

The table shows the income tax rates for the 2020–2021 financial year.

<i>Taxable income</i>	<i>Tax on this income</i>
0–\$18 200	Nil
\$18 201–\$45 000	19c for each \$1 over \$18 200
\$45 001–\$120 000	\$5092 plus 32.5c for each \$1 over \$45 000
\$120 001–\$180 000	\$29 467 plus 37c for each \$1 over \$120 000
\$180 001 and over	\$51 667 plus 45c for each \$1 over \$180 000

For the 2020–2021 financial year, Hara had a total income of \$145 000, and her tax payable was \$33 167 (excluding the Medicare levy).

- (a) Calculate Hara’s taxable income. **2**

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- (b) How much did Hara claim as allowable tax deductions? **1**

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Question 28 (4 marks)

The teachers at Quest Hills High School set up seven activity stations for the school’s annual fundraising event. The table shows the distances (in metres) between the seven activity stations.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
<i>A</i>	–	66	70	–	–	–	–
<i>B</i>	66	–	85	50	–	80	–
<i>C</i>	70	85	–	65	50	–	–
<i>D</i>	–	50	65	–	70	25	–
<i>E</i>	–	–	50	70	–	20	55
<i>F</i>	–	80	–	25	20	–	30
<i>G</i>	–	–	–	–	55	30	–

(a) Using the data from the table above, draw a weighted network diagram in the space below. **2**

(b) Determine the shortest path from activity station *A* to activity station *G*. **1**

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(c) What is the weight of the shortest path? **1**

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Question 29 (4 marks)

A disease’s growth rate refers to how quickly the number of infections changes each day.

The number of cases of infection of a certain disease grows exponentially according to the function $c = 220(1.07)^d$, where c is the number of cases and d is the time in days.

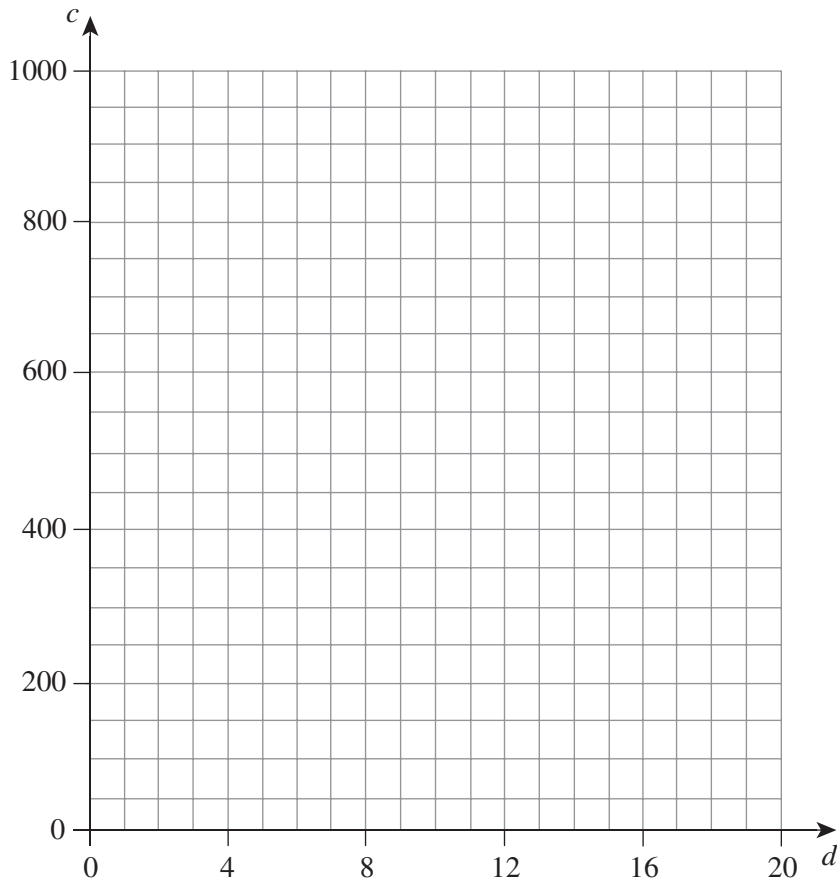
<i>Number of days (d)</i>	0	4	8	12	16	20
<i>Number of cases (c)</i>	220	288	378	495	649	?

- (a) What is the number of cases after 20 days? Give your answer correct to the nearest whole number. **1**

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- (b) On the grid below, draw the graph that represents the relationship between d and c . **2**



- (c) Using the graph drawn, or otherwise, estimate the time taken, in days, for the number of cases to reach 800. Give your answer correct to the nearest whole number. **1**

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Question 30 (4 marks)

Remi purchased a car for \$34 850.

- (a) The table shows the stamp duty rates for a motor vehicle in the state where Remi lives and purchased the car.

<i>Vehicle value</i>	<i>Rate</i>
0–\$4999	Nil
\$5000–\$44 999	\$3 for every \$100 (or part thereof)
\$45 000 and over	\$1300 plus \$6 for every \$100 (or part thereof)

Using the table, calculate the stamp duty payable on the car. **2**

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- (b) The car has an expected depreciation rate of 18% per annum. **2**
 What is the salvage value of the car after 5 years?

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Section II extra writing space

If you use this space, clearly indicate which question you are answering.

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HSC Year 12 Mathematics Standard 2

Section II Answer Booklet 2

Booklet 2 – Attempt Questions 31–40 (37 marks)

Instructions

- Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.
 - Your responses should include relevant mathematical reasoning and/or calculations.
 - Extra writing space is provided on pages 39–40 of Booklet 2. If you use this space, clearly indicate which question you are answering.
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Please turn over

Question 31 (3 marks)

The distance, d , in kilometres that a speed camera can see when placed at a height, h , in metres

above the ground is given by the formula $d = \sqrt{\frac{h}{6.5}}$.

- (a) If the camera is placed 4 metres above ground, how far can it see? Give your answer correct to two decimal places. **1**

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- (b) Rearrange the formula $d = \sqrt{\frac{h}{6.5}}$ to make h the subject. **2**

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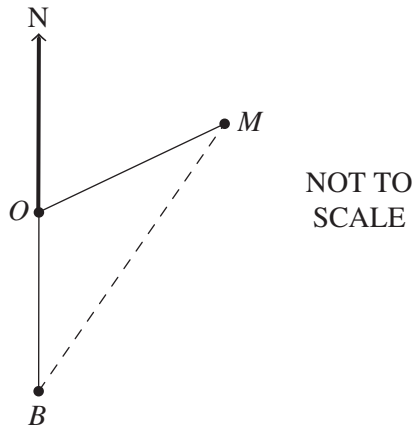
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Question 32 (3 marks)

A mother bird (M) leaves her nest (O) and flies on a bearing of 048° for 9.5 km. A baby bird (B) leaves the same nest and flies due South for 4 km.



- (a) Find the value of $\angle MOB$. **1**

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- (b) Using the cosine rule, find the distance between the two birds, correct to the nearest kilometre. **2**

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Question 33 (3 marks)

At a schools swimming carnival, the finish times for students under 17 who competed in the 50 m backstroke race are found to be normally distributed with a mean race time of 42 seconds and a standard deviation of 3 seconds.

3

The standard normal distribution table is shown. The values in the table represent the area under the normal curve to the left of the z -score.

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.50399	0.50798	0.51197	0.51595	0.51994	0.52392	0.52790	0.53188	0.53586
0.1	0.53983	0.54380	0.54776	0.55172	0.55567	0.55966	0.56360	0.56749	0.57142	0.57535
0.2	0.57926	0.58317	0.58706	0.59095	0.59483	0.59871	0.60257	0.60642	0.61026	0.61409
0.3	0.61791	0.62172	0.62552	0.62930	0.63307	0.63683	0.64058	0.64431	0.64803	0.65173
0.4	0.65542	0.65910	0.66276	0.66640	0.67003	0.67364	0.67724	0.68082	0.68439	0.68793
0.5	0.69146	0.69497	0.69847	0.70194	0.70540	0.70884	0.71126	0.71566	0.71904	0.72240
0.6	0.72575	0.72907	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75175	0.75490
0.7	0.75804	0.76115	0.76424	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78524
0.8	0.78814	0.79103	0.79389	0.79673	0.79955	0.80234	0.80511	0.80785	0.81057	0.81327
0.9	0.81594	0.81859	0.82121	0.82381	0.82639	0.82894	0.83147	0.83398	0.83646	0.83891
1.0	0.84134	0.84375	0.84614	0.84849	0.85083	0.85314	0.85543	0.85769	0.85993	0.86214
1.1	0.86433	0.86650	0.86864	0.87076	0.87286	0.87493	0.87698	0.87900	0.88100	0.88298
1.2	0.88493	0.88686	0.88877	0.89065	0.89251	0.89435	0.89617	0.89796	0.89973	0.90147
1.3	0.90320	0.90490	0.90658	0.90824	0.90988	0.91149	0.91308	0.91466	0.91621	0.91774
1.4	0.91924	0.92073	0.92220	0.92364	0.92507	0.92647	0.92785	0.92922	0.93056	0.93189
1.5	0.93319	0.93448	0.93574	0.93699	0.93822	0.93943	0.94062	0.94179	0.94295	0.94408
1.6	0.94520	0.94630	0.94738	0.94845	0.94950	0.95053	0.95154	0.95254	0.95352	0.95449

Using standardised scores and the standard normal distribution table, find the probability that a randomly chosen competitor achieves a finish time between 43 and 46 seconds. Give your answer correct to three decimal places.

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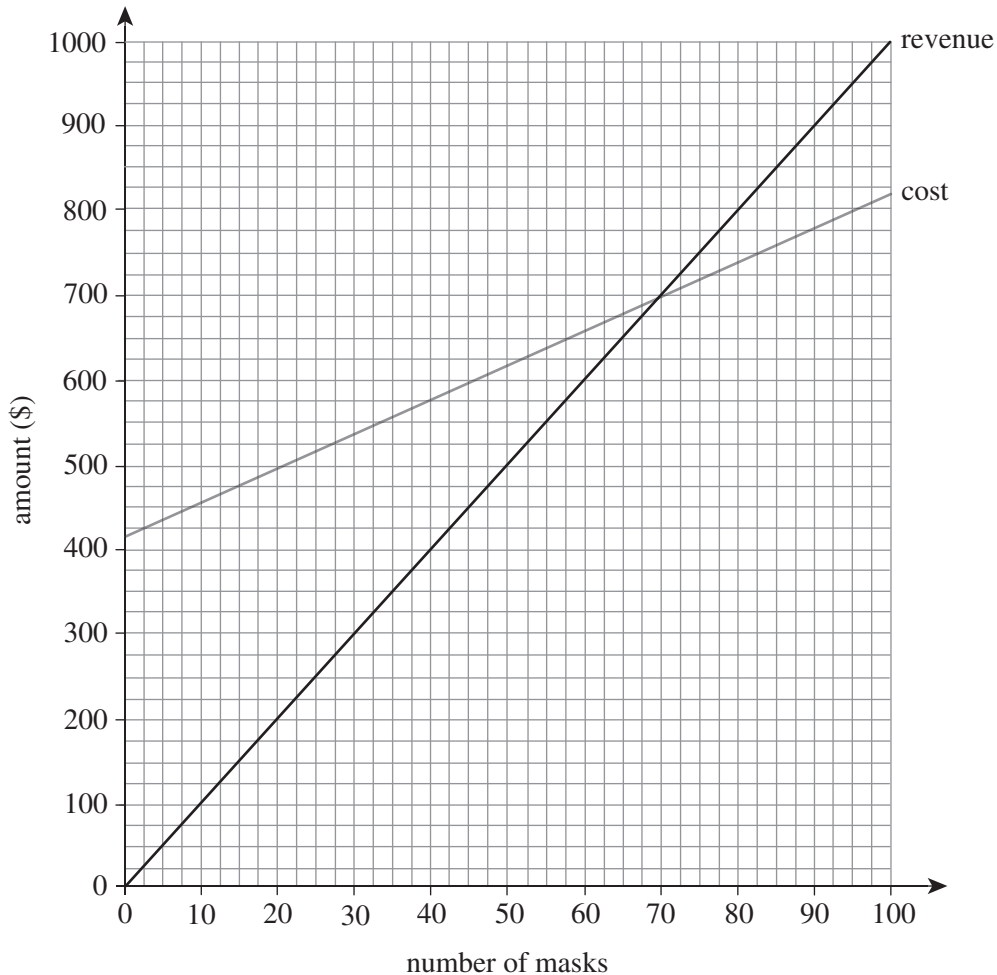
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Question 34 (5 marks)

Willow’s business Fashion Face Masks makes and sells embroidered face masks. Willow purchases plain cloth masks and embroiders them with different patterns.

The cost of each plain mask is \$4 and Willow sells the embroidered masks for \$10 each. Willow invests \$420 in an embroidery machine and a thread kit to make 100 masks.

The production cost and revenue generated from the sale of the embroidered masks can be modelled with two linear equations, as shown in the graph.



- (a) Using the graph, solve the two equations simultaneously and explain the significance of this solution for Willow’s business. 2

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- (b) How many masks does Willow need to sell to obtain a revenue of \$350? 1

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Question 34 continues on page 32

Question 34 (continued)

- (c) How much profit does Willow make if she sells 100 masks? 2

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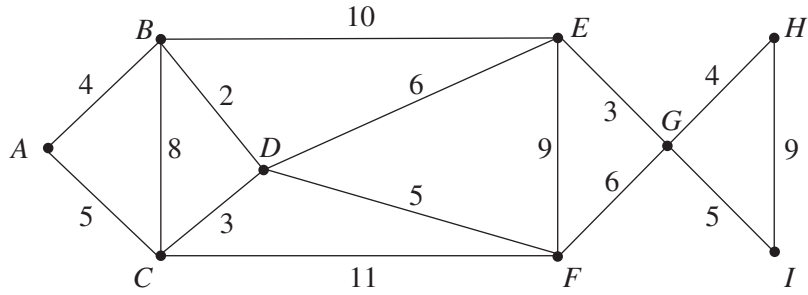
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End of Question 34

Question 35 (3 marks)

The network diagram shows the cost, in hundreds of dollars, to connect electrical cables to multiple points in a building.



(a) Draw the minimum spanning tree for this network in the space below.

2

(b) Using the minimum spanning tree, calculate the minimum cost to connect a cable to every point in the building.

1

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Question 36 (4 marks)

Hanako contributes \$8500 to an investment account every year for 6 years. The account pays 8% interest per annum, compounded annually.

<i>Future value of \$1</i>								
<i>Period</i>	<i>1%</i>	<i>2%</i>	<i>3%</i>	<i>4%</i>	<i>5%</i>	<i>6%</i>	<i>7%</i>	<i>8%</i>
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464
4	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061
5	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666
6	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228
8	8.2857	8.5380	8.8923	9.2142	9.5491	9.8975	10.2598	10.6366

- (a) What is the future value of Hanako’s annuity at the end of 6 years? 1

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- (b) Calculate the total amount of interest that Hanako will earn on her investment at the end of 6 years. 1

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- (c) Hanako is considering opening another investment account that pays 8% interest per annum, compounded biannually, for 3 years. 2
 Using the formula $FV = PV(1 + r)^n$, determine the single sum of money that Hanako would need to invest in this account to reach the same future value calculated in part (a).

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Question 37 (3 marks)

To purchase her first car, Tamara obtains a loan of \$9500. The loan is borrowed at 7.2% per annum, compounded quarterly. Each quarter, after the interest has been applied, Tamara makes a repayment of \$450.

The recurrence relation is modelled by $V_{n+1} = V_n \times (1 + r) - 450$, where:

- V_{n+1} is the value of the loan after $(n + 1)$ repayments
- V_n is the value of the loan after n repayments
- r is the rate of interest.

(a) Find the value of r correct to two significant figures. **1**

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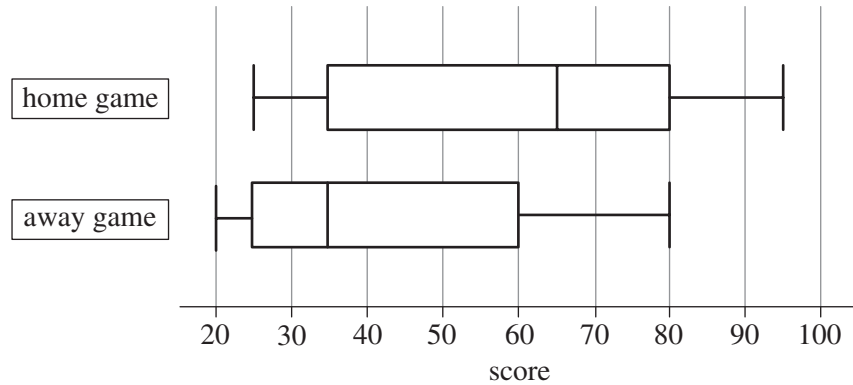
(b) Use the recurrence relation to calculate the balance of the loan after Tamara has made her second repayment. **2**

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Question 38 (5 marks)

A local basketball team played 23 home games and 23 away games. The home game scores are the scores that the team made during games at their basketball court; the away game scores are the scores that the team made during games at opponents' courts.

The scores from each game are represented in the box-plot.



- (a) What was the team's lowest home game score? **1**

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- (b) What percentage of the team's away game scores were less than 35? **1**

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- (c) Compare and contrast the distributions of the team's home and away game scores. **3**
 In your answer, comment on the skewness of the distributions, measures of central tendency and spread.

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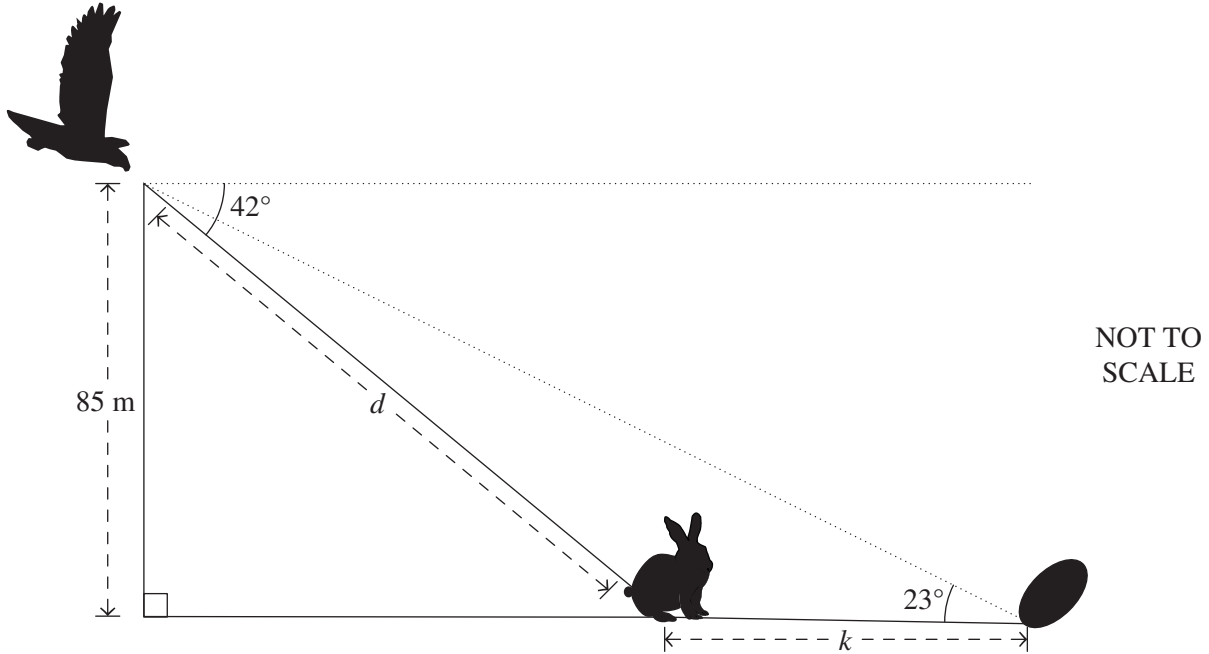
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Question 39 (4 marks)

An eagle flying above a field looking for prey sees a rabbit. When the eagle is at an altitude of 85 metres, the angle of depression from the eagle to the rabbit is 42° .

The rabbit's only chance of survival is to escape into its burrow. The burrow is k metres to the right of the rabbit and has an angle of elevation of 23° to the eagle, as shown in the diagram.



- (a) What is the distance, d , between the eagle and the rabbit? Give your answer correct to one decimal place. **1**

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- (b) What is the distance, k , between the rabbit and its burrow? Give your answer correct to the nearest metre. **3**

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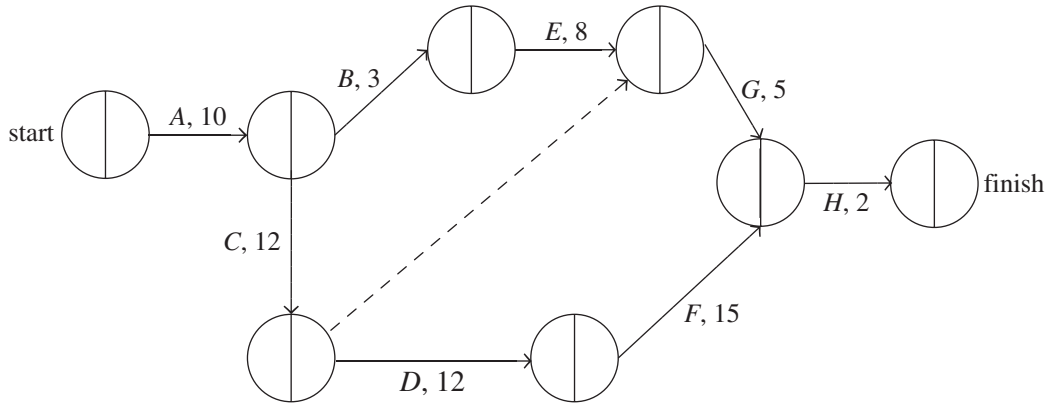
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Question 40 (4 marks)

The network diagram shows the activities necessary to complete a project. Activity duration is in hours.



(a) On the network diagram, write the earliest starting times (ESTs) and the latest starting times (LSTs). **2**

(b) What is the critical path? **1**

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(c) Determine the float time of activity *G*. **1**

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End of paper

Section II extra writing space

If you use this space, clearly indicate which question you are answering.

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REFERENCE SHEET

Measurement**Limits of accuracy**

$$\text{absolute error} = \frac{1}{2} \times \text{precision}$$

$$\text{upper bound} = \text{measurement} + \text{absolute error}$$

$$\text{lower bound} = \text{measurement} - \text{absolute error}$$

Length

$$l = \frac{\theta}{360} \times 2\pi r$$

Area

$$A = \frac{\theta}{360} \times \pi r^2$$

$$A = \frac{h}{2}(a+b)$$

$$A \approx \frac{h}{2}(d_f + d_l)$$

Surface area

$$A = 2\pi r^2 + 2\pi rh$$

$$A = 4\pi r^2$$

Trigonometry

$$\sin A = \frac{\text{opp}}{\text{hyp}}, \cos A = \frac{\text{adj}}{\text{hyp}}, \tan A = \frac{\text{opp}}{\text{adj}}$$

$$A = \frac{1}{2}ab \sin C$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Volume

$$V = \frac{1}{3}Ah$$

$$V = \frac{4}{3}\pi r^3$$

Financial Mathematics

$$FV = PV(1+r)^n$$

Straight-line method of depreciation

$$S = V_0 - Dn$$

Declining-balance method of depreciation

$$S = V_0(1-r)^n$$

Statistical Analysis

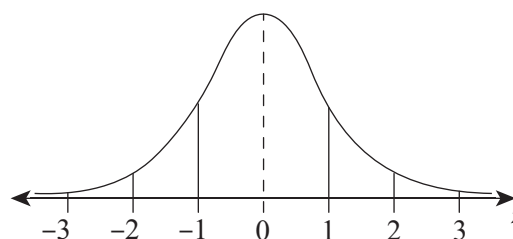
An outlier is a score

$$\text{less than } Q_1 - 1.5 \times IQR$$

or

$$\text{more than } Q_3 + 1.5 \times IQR$$

$$z = \frac{x - \mu}{\sigma}$$

Normal distribution

- approximately 68% of scores have z-scores between -1 and 1
- approximately 95% of scores have z-scores between -2 and 2
- approximately 99.7% of scores have z-scores between -3 and 3

Neap Trial Examination 2021

HSC Year 12 Mathematics Standard 2

DIRECTIONS:

Write your name in the space provided.

Write your student number in the boxes provided below. Then, in the columns of digits below each box, fill in the oval which has the same number as you have written in the box. Fill in **one** oval only in each column.

Read each question and its suggested answers. Select the alternative A, B, C, or D that best answers the question. Fill in the response oval completely, using blue or black pen. Mark only **one** oval per question.

A B C D

If you think you have made a mistake, put a cross through the incorrect answer and fill in the new answer.

A B C D

If you change your mind and have crossed out what you consider to be the correct answer, then indicate this by writing the word *correct* and draw an arrow as follows.

A B C D
correct
 ↓

STUDENT NAME: _____

STUDENT NUMBER:

①	①	①	①	①	①	①	①	①
②	②	②	②	②	②	②	②	②
③	③	③	③	③	③	③	③	③
④	④	④	④	④	④	④	④	④
⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨
⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩	⑩

SECTION I MULTIPLE-CHOICE ANSWER SHEET

1. A B C D
2. A B C D
3. A B C D
4. A B C D
5. A B C D
6. A B C D
7. A B C D
8. A B C D
9. A B C D
10. A B C D
11. A B C D
12. A B C D
13. A B C D
14. A B C D
15. A B C D

**STUDENTS SHOULD NOW CONTINUE
WITH SECTION II**