Western Mathematics

Practice Paper 1

Mathematics Standard 2

General Instructions

- Reading time – 5 minutes
- Working time – 2 hours and 30 minutes
- Write using black pen
- Approved calculators may be used
- A reference sheet is provided at the back of this paper
- In 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 – 37)

- Attempt Questions 16 – 50
- Allow about 2 hours and 5 minutes for this section

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
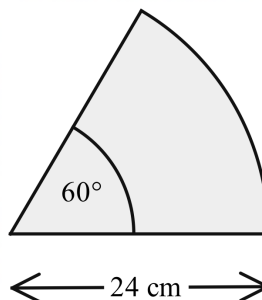
1. Which calculation could be used to find the shaded area below?

    (A) $A = \dfrac{60}{360} \times 2 \times \pi \times 24$

    (B) $A = \dfrac{60}{360} \times 2 \times \pi \times 48$

    (C) $A = \dfrac{60}{360} \times \pi \times 24^2$

    (D) $A = \dfrac{60}{360} \times \pi \times 48^2$

2. Mohsen has three spare tickets to an opera performance. He texts the ten friends on his phone who like opera and offers a ticket each to the first three who text him back. How many different combinations of three friends could get the tickets?

    (A)   120

    (B)   240

    (C)   360

    (D)   720

3. Susilo has a gross annual income of $69 000.00 and eligible tax deductions which total $1 255.00. Use the table below to calculate the amount of income tax he must pay.

Taxable income	Tax on this income
0 – $18,200	Nil
$18,201 – $37,000	19c for each $1 over $18,200
$37,001 – $80,000	$3,572 plus 32.5c for each $1 over $37,000
$80,001 – $180,000	$17,547 plus 37c for each $1 over $80,000
$180,001 and over	$54,547 plus 45c for each $1 over $180,000

    (A) $3 572.00

    (B) $9 992.13

    (C) $13 564.13

    (D) $22425.00

4.   Which network would be described by the table below?

		To				
		A	B	C	D	E
From	A	-	-	-	12	7
	B	10	-	-	-	-
	C	-	8	-	-	-
	D	-	-	-	-	9
	E	-	-	14	-	-

(A)

(B)

(B)

(D)
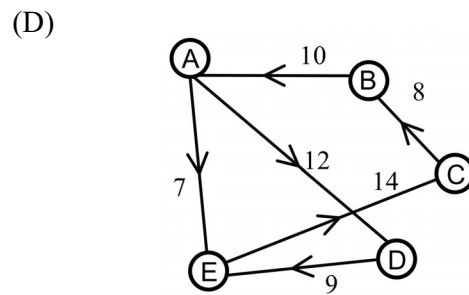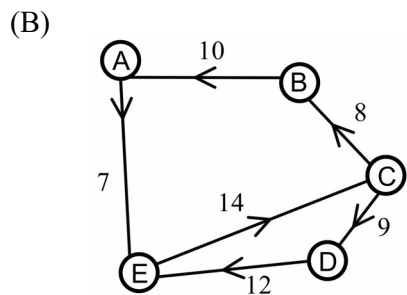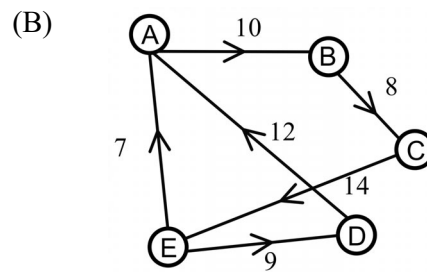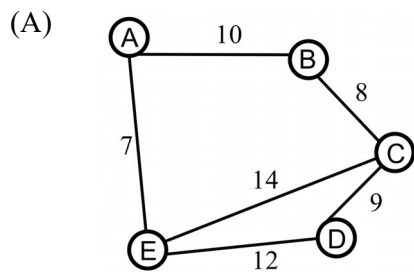
5.   Expand and simplify the expression $3ab - 3a(2a - 4b) - a^2$.

(A) $5a^2 - 9ab.$

(B) $7a^2 - 15ab.$

(C) $9ab - 5a^2.$

(D) $15ab - 7a^2.$

6. A plane flies due north from Kensington (K) for 230 km to Wishire (W). It then turns and flies due east for 320 km to Trenton (T).

    What is the bearing of Kensington from Trenton?

    (A) 036º

    (B) 216

    (C) 234º

    (D) 306º

7. Lily and Ethan start paying off a home loan for $250 000 with an initial interest rate of 6% pa, calculated monthly. Lily creates a spreadsheet to keep track of their balance. She entered all interest rate changes and any changes they made to their repayment amount when they occurred.

    In which month and by how much did the interest rate change?

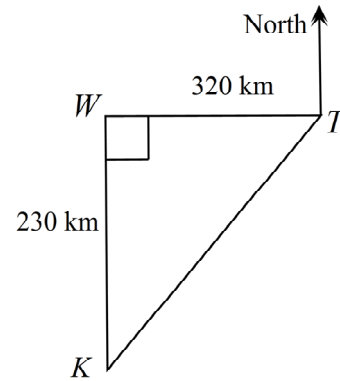|	A	B	C	D	E	F
2			Balance Start		Balance End	
3	Date	Repayment	Month	Interest	Month	
4	Jan-14	$1,600.00	$250,000.00	$1,250.00	$249,650.00	
5	Feb-14	$1,600.00	$249,650.00	$1,248.25	$249,298.25	
6	Mar-14	$1,600.00	$249,298.25	$1,246.49	$248,944.74	
7	Apr-14	$1,600.00	$248,944.74	$1,244.72	$248,589.46	
8	May-14	$2,000.00	$248,589.46	$1,242.95	$247,832.41	
9	Jun-14	$2,000.00	$247,832.41	$1,342.43	$247,174.84	
10	Jul-14	$2,000.00	$247,174.84	$1,338.86	$246,513.70	
11	Aug-14	$2,000.00	$246,513.70	$1,335.28	$245,848.98	
12						
13						

Sheet1 Sheet2 Sheet3

    (A) It decreased by 1.0% pa in May.

    (B) It increased by 0.5% pa in June.

    (C) It increased by 1.0% pa in June.

    (D) It increased by 0.5% pa in July.

8. Josh collects data for two variables which he plots on a scatterplot and draws a line of best fit.

   What is the likely correlation coefficient for the two variables?

   (A) $r = -0.95$

   (B) $r = -0.59$

   (C) $r = 0.59$

   (D) $r = 0.95$

Infant Mortality (per 1000 births) vs Life Expectancy at Birth (years)
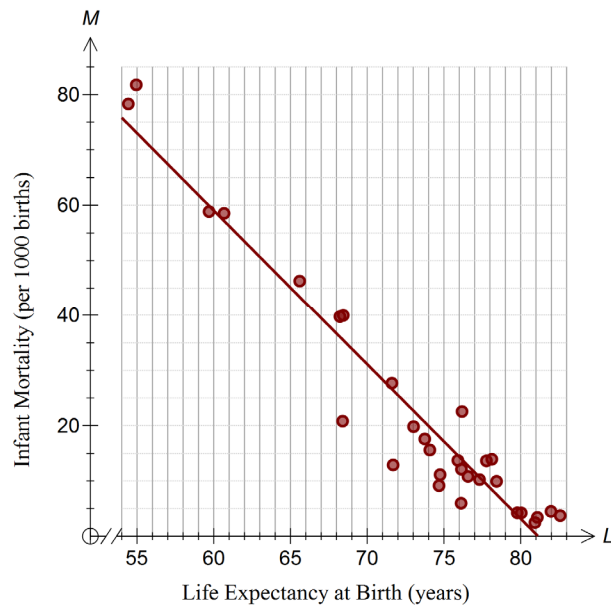
9. On the 1st January 2017 Rebecca invested $1 450 in an account which pays 12% pa interest, compounded quarterly. On the 1st January 2018 she added a further $1 280 to the account. How much has she in the account on the 1st January 2019?

   (A) $3252.48

   (B) $2 911.99

   (C) $3 277.47

   (D) $5 604.25

10. Handicloth is a brand of kitchen cloth which is sold in various sizes and has been tested to absorb liquid at a rate of 5 L/m^2.

    How much liquid would be absorbed by a Handicloth which is a square with 30 cm edges?

    (A)   150 mL

    (B)   450 mL

    (C)   4.5 L

    (D)   15 L

11. Caleb is investigating the different forms of depreciation of a vehicle. He collects the depreciation tables from four car dealers and graphs the value of a car initially valued at $25 000 over 5 years under each table.

Which graph shows that a declining balance method of depreciation was used?

(A)
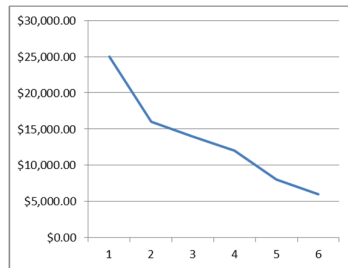
(B)
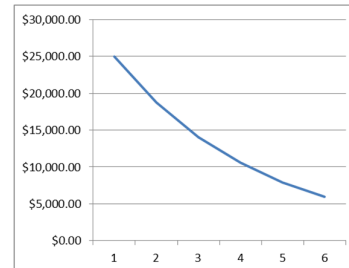
(C)
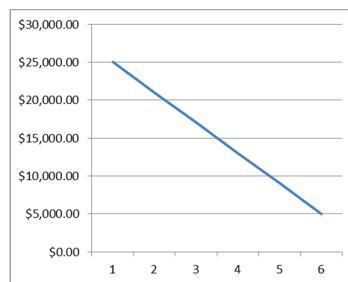
(D)
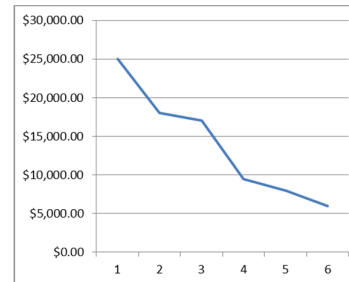
12. A group of 120 workers took a competency test in welding and their results were normally distributed. The mean score of the group was 90% with a standard deviation of 5%.

Kevin scored 80% on the test. What is this as a z-score?

(A) -2

(B) -1

(C)   1

(D)   2

13. Which graph could represent the function $y = 3^{-x}$?

(A)
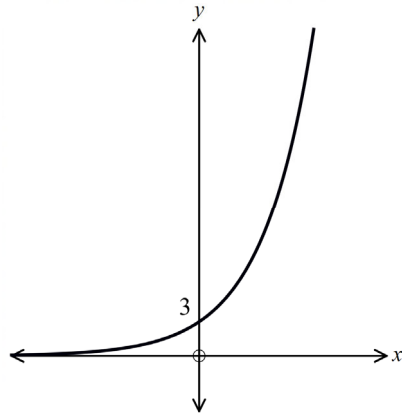
(B)
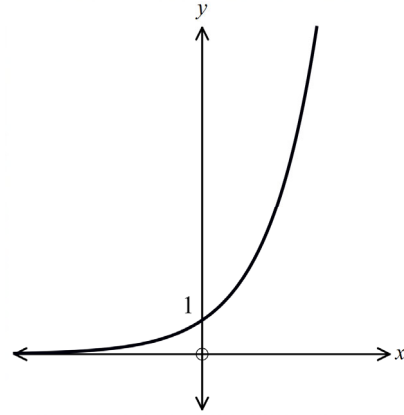
(C)
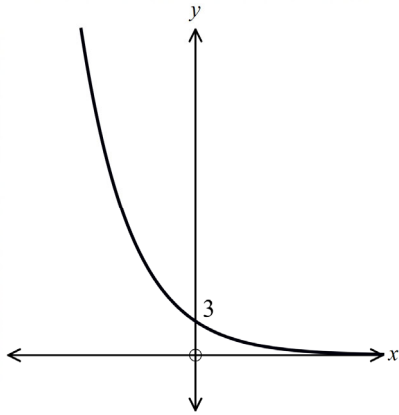
(D)
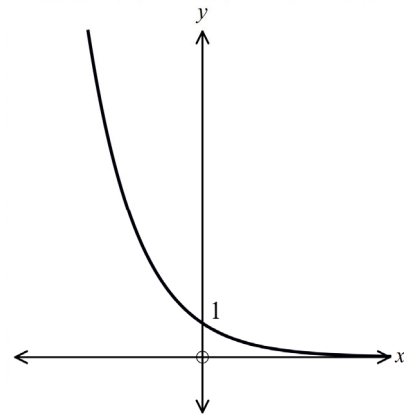
14. Which equation describes the relationship between the two variables a and b.

(A) $b = 2a + 3$

(B) $b = 3a + 2$

(C) $b = 6a + 3$

(D) $b = 6a + 15$
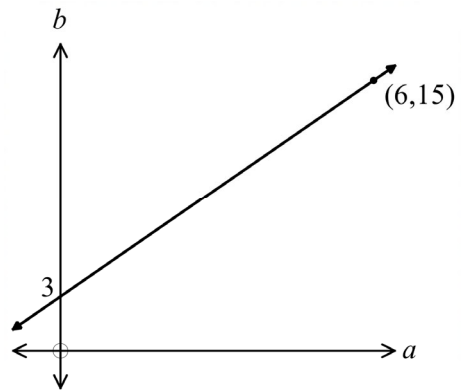
15.   Which diagram shows a spanning tree for the network below?
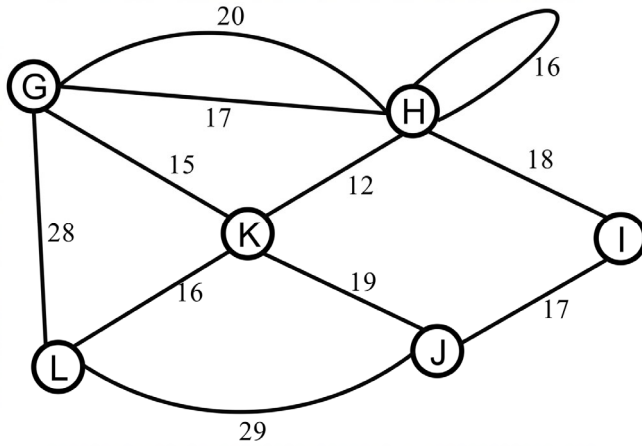
(A)
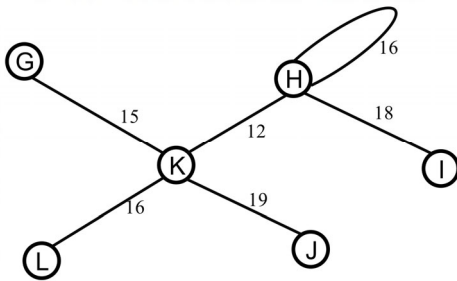
(B)
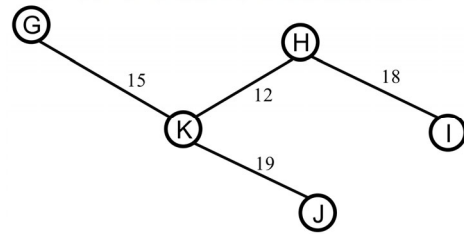
(C)
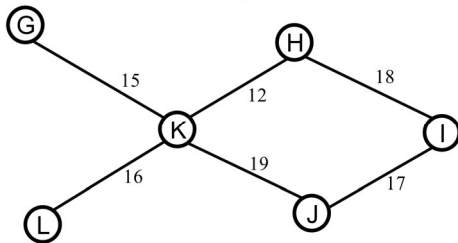
(D)
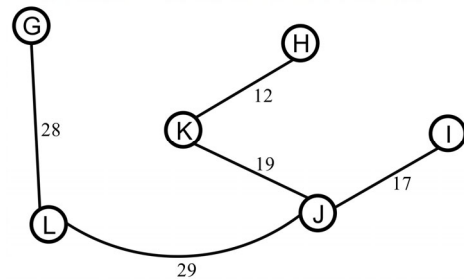
Western Mathematics

**PRACTICE HIGHER SCHOOL CERTIFICATE
    EXAMINATION**

Practice Paper 1

Mathematics Standard 2
Section II Answer Booklet

Class and Teacher

Student Number

Student Name

85 marks
Attempt Questions 16-47
Allow about 2 hours and 5 minutes for this section

_____
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 at the back of the booklet.
  If you use this space, clearly indicate which question you are answering.

Marks

Question 16 (2 marks)

Barbara conducts a survey on the driving experience of 17 – 21 year-olds.
She begins to design the questionnaire below to collect her data.

---

1. Do you have a drivers licence?

   Yes ⬭ No ⬭

2. If yes, how many times did you need to take your
   test to get your licence?

   ………………………

3. What size car do you drive?

   Micro ⬭   Small ⬭   Medium ⬭   Large ⬭

4. How far would you drive in a week?

   ………………………

(a) Barbara posts the survey on her Facebook page and invites people to complete the survey.   **1**

Outline why this is not a reliable way to obtain a sample of participants for the survey?

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(b) Use two statistical terms to describe the type of data collected in question 3.   **1**

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Marks

Question 17 (2 marks)

Liza buys a car which has a market value of $60 000 before on-road costs.   **2**
        Stamp duty on the car is calculated at these rates:

- 3% of the market value up to and including $45,000
- 5% of the market value over $45,000.

How much will Liza pay for the car, including stamp duty.

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Question 18 (3 marks)

Alex has 12 songs to his digital player. Five of them are by Drake, four by Post Malone and three by 5SOS. He plays two tracks randomly. A probability tree has been started for which two artists are played.
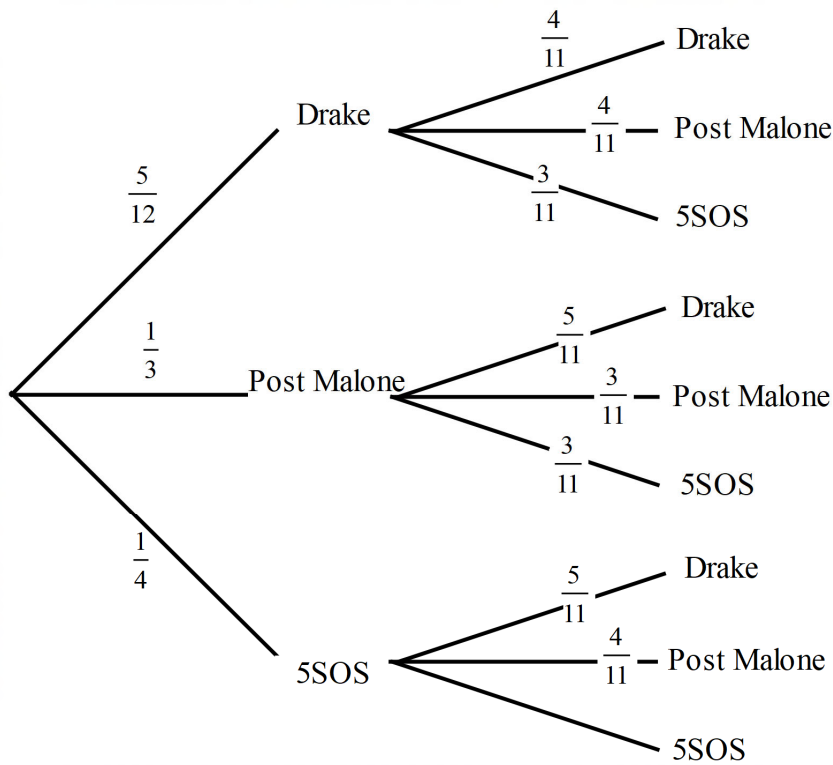
Marks

    (a)   What probability should be written on the last branch?   **1**

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    (b)   What is the probability that both tracks are by the same artist?   **1**

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    (c)   What is the probability that the two tracks are by different artists?   **1**

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Question 19 (2 marks)

Nola's car has a fuel consumption rate of 15 litres/100 km on city roads and 10 litres/100 km on the open highway.   **2**

How much will she use in a trip which has 50 km of city driving and 250 km of driving on the open highway?

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Marks

Question 20 (2 marks)

2

A machine on a production line produces solid metal cylindrical parts.

The cylinders which come off the production line have diameters which are normally distributed with a mean of 6.3 cm and a standard deviation of 0.05 cm.

Any cylinder with a diameter greater than 6.4 cm or less than 6.25 cm must be rejected.

What percentage of the cylinders are rejected?

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Question 21 (2 marks)

Caroline measures the dimensions of the container shown using a ruler marked in half centimetre divisions.

2
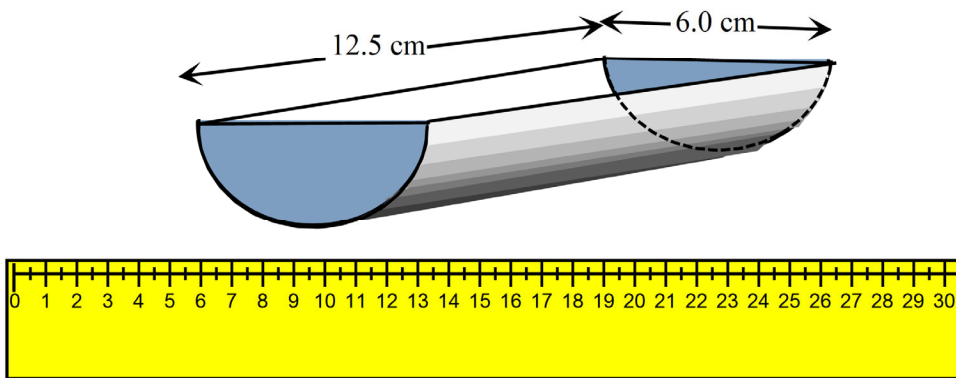
Marks

Question 22 (2 marks)

Chelsea works in a used car yard, where she spends some time doing clerical work and when needed, she acts as a salesperson. She is paid $19.50 per hour for the time she spends working at the car yard plus a commission of 4% of any sales that she generates. Last week she worked for 35 hours and generated sales to the value of $16 000.

2

What was her gross pay last week?

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Question 23 (2 marks)

Over a month, Juliette records the number of minutes she spends on exercise each day for a month.

The data is displayed in the stem and leaf plot.

Minutes of Exercise per Day

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1 | 8  8
2 | 2  4
3 | 2  3  4  6  9
4 | 1  3  6  7
5 | 0  3  5  7
6 | 3  6
7 | 3
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(a) What is the mean of the data?   **1**

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(b) What is the standard deviation of the data?   **1**

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Marks

Question 24 (3 marks)

Gaby boards a plane in New York at 6 am on Wednesday 7th August, flying to Sydney.

Sydney's time zone is UTC +10 and New York's is UTC–5.

    (a) What is the time difference between the two cities?   **1**

        …………………………………………………………………………………………

        …………………………………………………………………………………………

    (b) As she boards the plane, she phones her dad in Sydney to let him know she is   **1**
        leaving.
        What is the time in Sydney when he gets the call?

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    (c) If the flight takes 20 hours from time of boarding, what is the local time when she   **1**
        disembarks in Sydney?

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        …………………………………………………………………………………………

        …………………………………………………………………………………………

Marks

Question 25 (3 marks)

Mark drives from his home at Paradiso (P) to his work at Utopia (U).

3

There are several roads that he can use that pass through four other towns Quirk, Rapt, Super and Treat.
The travel times (in minutes) between each of the towns is shown on the diagram below.
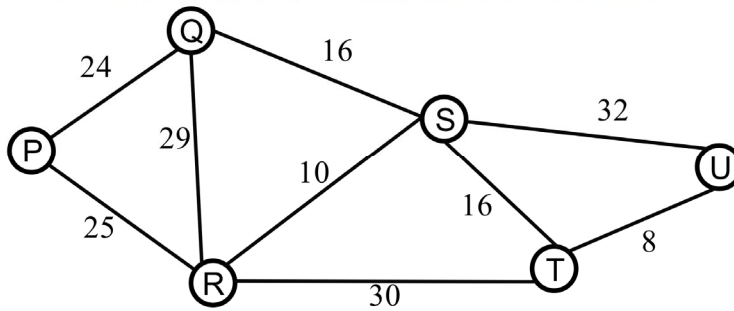
What is the least time that he can take to get to work and through which towns would he travel to achieve this?

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Question 26 (2 marks)

Adi buys a new heater which is rated at 2 000 watts. He uses it on 120 days of the year for an average of 8 hours per day. Electricity costs are $0.30 per kilowatt hour.

2

What would the heater cost to run for the year?

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Marks

Question 27 (3 marks)

Given the formula: $B = 2\pi\left(R + \dfrac{T}{2}\right) \times \dfrac{A}{360}$.

    (a) What is the value of B (correct to the nearest whole number), when   **1**
        $R = 60$, $T = 90$ and $A = 120$.

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    (b) What is the value of A (correct to the nearest whole number), when   **2**
        $R = 20$, $T = 30$ and $B = 55$.

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Question 28 (2 marks)

The table below gives the future value interest factors for a range of loan terms and interest rates.

	Table of future value interest factors								
	Interest Rate per Period								
Period	0.35%	0.40%	0.45%	0.50%	0.55%	0.60%	0.65%	0.70%	0.75%
115	141.2881	145.6553	150.1958	154.9172	159.8275	164.9349	170.248	175.7761	181.5285
116	142.7826	147.2379	151.8717	156.6918	161.7065	166.9245	172.3547	178.0065	183.89
117	144.2823	148.8269	153.5551	158.4753	163.5959	168.926	174.475	180.2526	186.2692
118	145.7873	150.4222	155.2461	160.2677	165.4957	170.9396	176.609	182.5143	188.6662
119	147.2976	152.0239	156.9447	162.069	167.4059	172.9652	178.757	184.7919	191.0812
120	148.8131	153.632	158.651	163.8793	169.3267	175.003	180.9189	187.0855	193.5143
121	150.334	155.2465	160.3649	165.6987	171.258	177.053	183.0949	189.3951	195.9656
122	151.8601	156.8675	162.0866	167.5272	173.1999	179.1153	185.285	191.7208	198.4354
123	153.3916	158.4949	163.8159	169.3649	175.1525	181.19	187.4894	194.0629	200.9236
124	154.9285	160.1289	165.5531	171.2117	177.1158	183.2772	189.7081	196.4213	203.4306
125	156.4708	161.7694	167.2981	173.0678	179.09	185.3768	191.9412	198.7963	205.9563

(a)   Find the future value of an annuity of \$450 per month invested at 6.6% pa   **1**
compounding monthly for 10 years. (Answer to the nearest dollar)

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(b)   What is the minimum term required for an annuity of \$500 per month at 9% pa   **1**
compounding monthly to reach a value of \$100 000?

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Question 29 (3 marks)

A sum of $2 000 is invested at 5% pa compounding annually.

The graph of the equation $FV = 2000\,(1.05)^n$ illustrates how the investment grows.
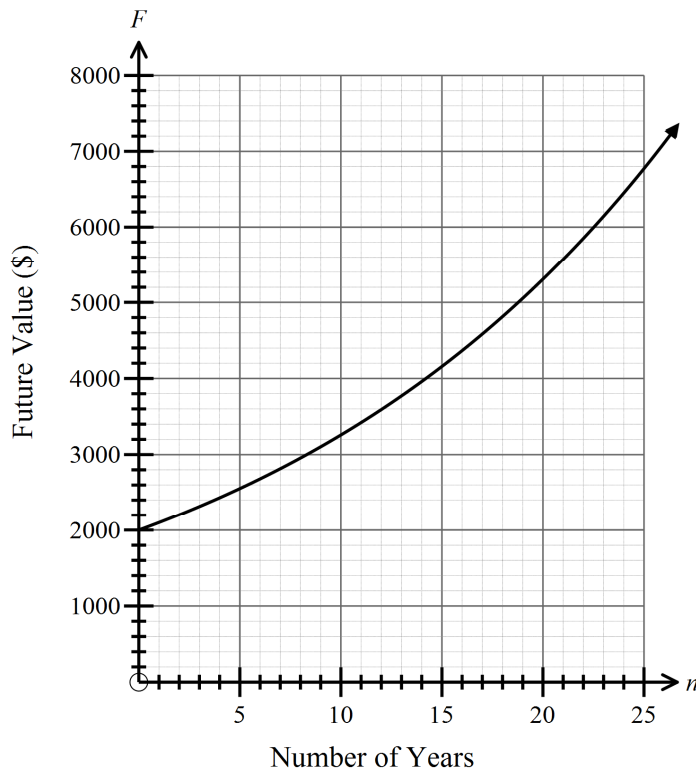
(a)   Estimate the number of years it would take this investment to double in value   **1**
(ie reach a future value of $4 000).

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(b)   Compare the time it takes the investment to triple in value with the time that it   **2**
takes to double in value. Explain the difference.

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Question 30 (2 marks)

The table below outlines the steps in producing and harvesting a crop of grain.

Activity	Description	Time (days)	Prerequisites
E	Purchase Seed	1	-
F	Service Tractor and Plow	2	-
G	Plow Field	5	F
H	Apply Fertiliser	2	-
I	Plant Seed	2	E, G, H
J	Wait for Crop to grow	40	I
K	Service harvester	3	F
L	Harvest Crop	5	K, J

Complete the network diagram below, by writing the remaining labels on the edges.   **2**
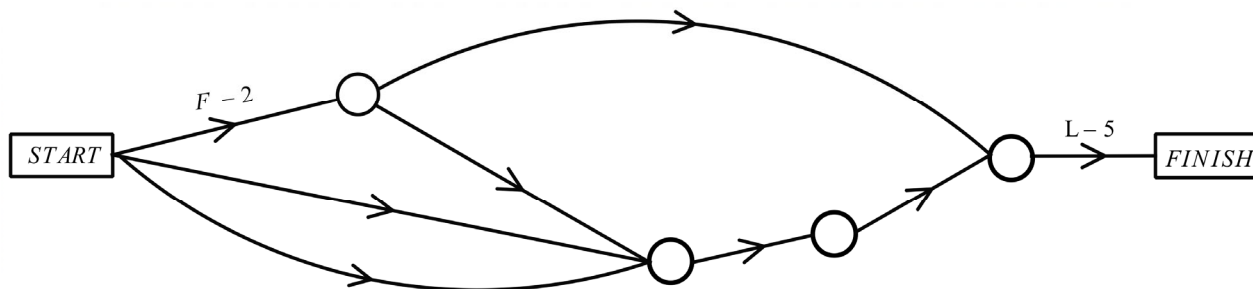
Question 31 (2 marks)

The table below gives the monthly repayment on a loan of $10 000 for various times and interest rates.

Monthly Repayments on a loan of $10 000

Time (years)

		2	3	4	5	6	7	8
	4	$434.25	$295.24	$225.79	$184.17	$156.45	$136.69	$121.89
Rate	5	$438.71	$299.71	$230.29	$188.71	$161.05	$141.34	$126.60
(%	6	$443.21	$304.22	$234.85	$193.33	$165.73	$146.09	$131.41
pa)	7	$447.73	$308.77	$239.46	$198.01	$170.49	$150.93	$136.34
	8	$452.27	$313.36	$244.13	$202.76	$175.33	$155.86	$141.37

Mason borrows $10 000 at 6% pa to buy a car and chooses to repay it in monthly repayments over 5 years.

Find how much will he will pay for the car altogether.

2

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Question 32 (3 marks)

There are five towns that are connected by a series of roads.

The distance between each town is shown on the diagram.
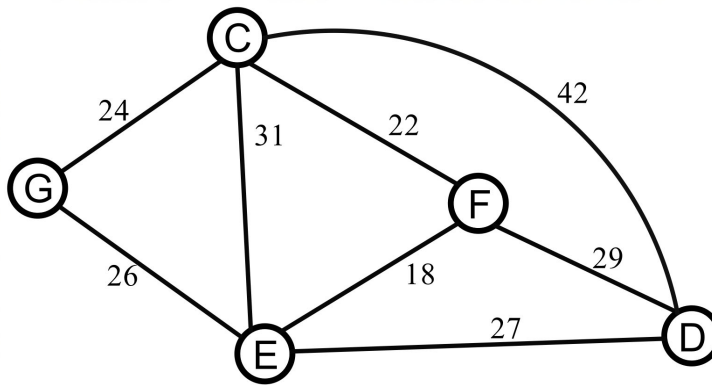
A funding program is introduced to re-seal some of the roads so that it is possible to travel between any two towns (not necessarily directly) along a newly sealed road.

    (a) What name, in network terminology, is given to the path which meets this requirement?   **1**

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    (b) What is the least length of road that would need to be re-sealed?   **2**

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Question 33 (2 marks)

Harry is working as a nurse on a children's ward.   **2**

Young's formula is used to calculate children's doses of drugs.

Young's Formula : Dosage for child 1-12 $= \dfrac{\text{age of child (in years)} \quad \times \text{ adult dose}}{\text{age of child (in years)} \quad + \ 12}$

Given the adult dosage of Adamine is 15 mL, what is an 8-year old child's dose?

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Question 34 (2 marks)

A water delivery truck has a cylindrical tank with the dimensions shown, on a trailer.   **2**
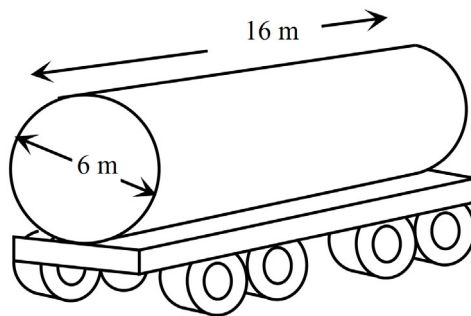
How many 150 kilolitre house tanks could be filled by the tank on the trailer?

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Question 35 (2 marks)

David records the duration of his phone calls (in minutes) over a day.
The results are shown on the dot plot.

Call Duration (minutes).
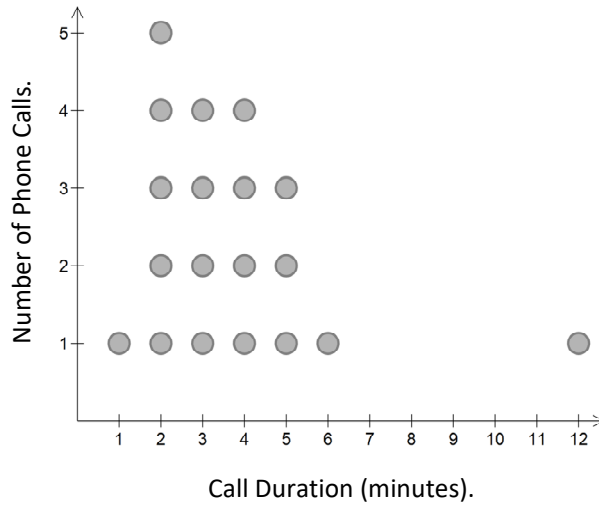
(a) What was the interquartile range of David's calls?   **1**

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(b)   Use the method where the outlier is defined as greater than $Q_3+1.5\times IQR$ to   **1**
decide if David's twelve-minute call an outlier?

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Question 36 (2 marks)

Sylvia and Mark are surveying an area of the Central West of NSW by helicopter. The map   **2**
shows the area in which they are working.
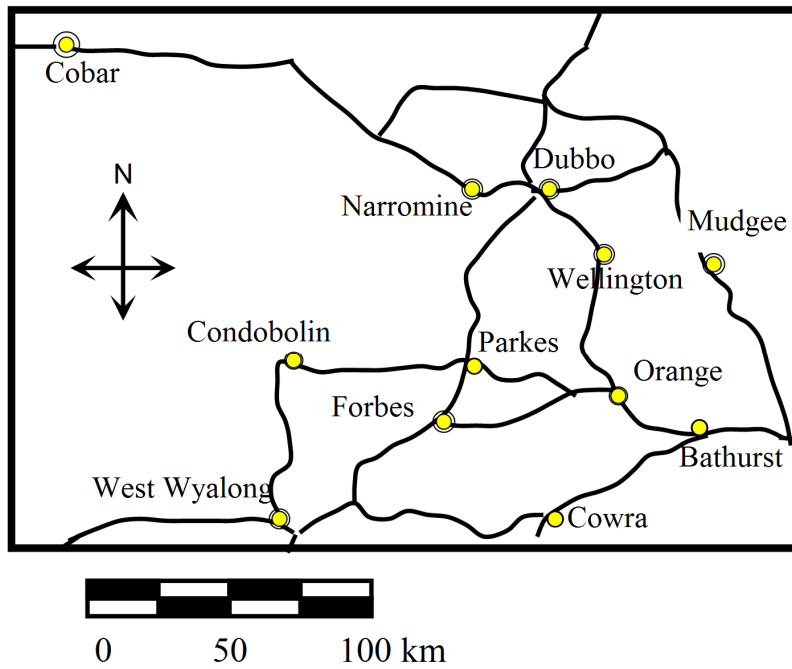
On one day, they survey a circular area centred at Parkes and with Dubbo on the circumference.

What is the area of the circle they are surveying on that day?

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Question 37 (4 marks)

Ebony is the manager of a company which produces widgets. She draws the graph of the line which gives the income (C) from selling N widgets.
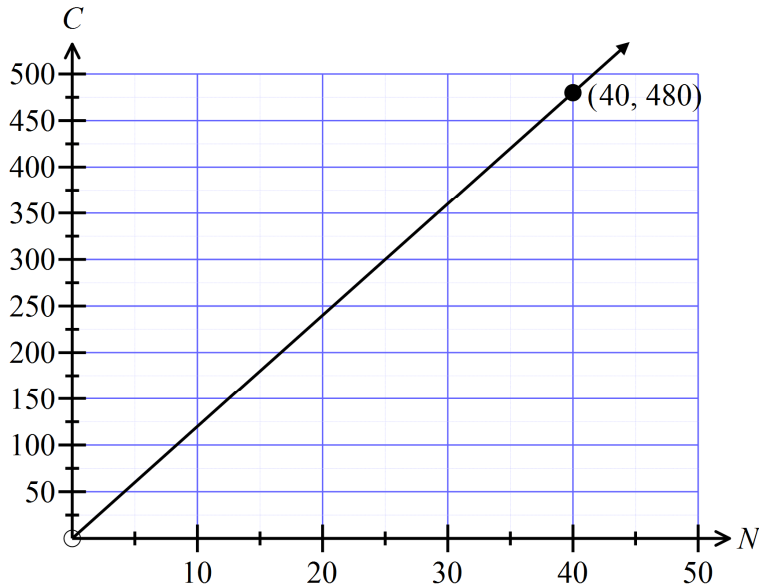
(a) What is the equation of the line?   **1**

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(b) Ebony also wants to draw the line representing the cost of producing N widgets.   **2**
      The equation of this line is $C = 8N + 100$.
      Draw the line on the graph.
      You can show any necessary working to obtain the line here.

....

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....

(c)   Give the coordinates of the break-even point for profit and loss.   **1**

....

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Question 38 (2 marks)

Lauren holds a survey of the residents of her block of units. She recorded some of the results in the table below.

	Male	Female	Total
Problems to report.	16	24	40
No Problems to report.	35	25	60
Total			

(a) If a resident was chosen at random, what is the probability that they were a male who had no problems to report?   **1**

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(b) If a female resident were chosen at random, what is the probability that she had no problems?   **1**

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Question 39 (2 marks)

Ella measures her mass as being 45 kg.
On Saturday night she had 4 standard drinks in 2½ hours.

The formula below can be used to estimate the BAC for females:

$$BAC_{\text{Female}} = \frac{10N - 7.5H}{5.5M}$$

where N is the number of standard drinks consumed, H is the number of hours of drinking, and M is the person's weight in kilograms.

(a) Show that her BAC was greater than 0.08 after her last drink.   **1**

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(b) The formula $\text{Time} = \dfrac{BAC}{0.015}$ can be used to determine the number of hours   **1**

required after a person stops consuming alcohol, for their BAC to reach zero.

How many hours would Ella require?

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Question 40 (3 marks)

Jimmy analyses the retention rate (the percentage of information recalled at the next lesson) for lessons at the local community college. Lessons are either one hour or a half hour in length and can be held in the morning, afternoon or evening. The table shows a summary of his results The mean and standard deviation for the morning half hour class is missing.

Length of Lesson		Time of Day		
		Afternoon	Evening	Morning
Half-Hour	Mean of Retention Rate	51%	43%	
	Standard Deviation of Retention Rate	10%	15%	
Hour	Mean of Retention Rate	65%	62%	73%
	Standard Deviation of Retention Rate	7%	10%	11%

(a) The raw data for the 8 students in the morning half-hour class is given below. Find the mean and standard deviation for this class.   **2**

35%   55%   45%   40%   65%   40%   40%   50%

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(b) Which class had the greatest variability in their retention rates?   **1**

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Question 41 (2 marks)

Alan drew the network shown below.
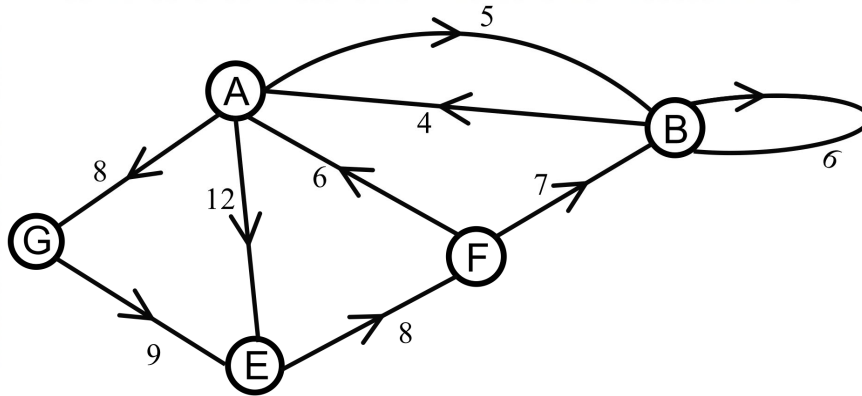
(a) What is the degree of the vertex B?   **1**

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(b) Alan describes the network as follows: **1**
     "A disconnected, directed network which includes two loops."
     Explain which parts of his description are incorrect.

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Question 42 (3 marks)

The table shows present value interest factors for some monthly interest rates (r) and loan terms in months (N).

Monthly Interest Rate (r)

	0.0040	0.0045	0.0050	0.0055	0.0060	0.0065	0.0070
106	86.2556	84.1540	82.1234	80.1612	78.2645	76.4310	74.6581
107	86.9080	84.7725	82.7099	80.7172	78.7918	76.9309	75.1322
108	87.5577	85.3883	83.2934	81.2702	79.3159	77.4277	75.6030
109	88.2049	86.0013	83.8741	81.8202	79.8369	77.9212	76.0705
110	88.8495	86.6115	84.4518	82.3672	80.3547	78.4115	76.5347
111	89.4916	87.2190	85.0267	82.9112	80.8695	78.8987	76.9958
112	90.1310	87.8238	85.5987	83.4522	81.3812	79.3827	77.4536
113	90.7680	88.4259	86.1678	83.9903	81.8899	79.8636	77.9082
114	91.4023	89.0253	86.7342	84.5254	82.3955	80.3413	78.3597
115	92.0342	89.6220	87.2977	85.0576	82.8981	80.8160	78.8081
116	92.6636	90.2160	87.8584	85.5868	83.3977	81.2877	79.2533
117	93.2904	90.8074	88.4163	86.1132	83.8944	81.7562	79.6954
118	93.9147	91.3961	88.9714	86.6367	84.3880	82.2218	80.1345
119	94.5366	91.9822	89.5238	87.1573	84.8788	82.6844	80.5705
120	95.1560	92.5656	90.0735	87.6751	85.3666	83.1439	81.0035
121	95.7729	93.1465	90.6204	88.1901	85.8515	83.6005	81.4334
122	96.3873	93.7247	91.1645	88.7022	86.3335	84.0542	81.8604
123	96.9993	94.3004	91.7060	89.2115	86.8126	84.5049	82.2844

Term in months (N)

Ruby borrows $65 000 for home improvements. She repays the loan with monthly repayments over 10 years. She is charged 6% pa interest.

(a) Calculate the amount of her monthly instalment.   **1**

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(b) How much less interest would she pay if she took the loan over 9 years instead   **2**
     of 10?

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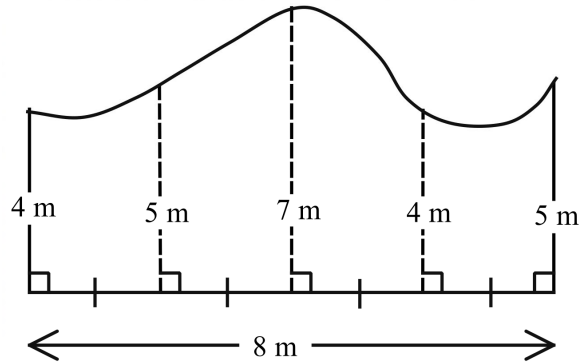……………………………………………………………………………………………

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Question 43 (3 marks)

A swimming pool has three straight sides and one which is curved. It is 1.5 metres deep at all points.

Maria takes the measurements shown of the pool in preparation for filling it with water.

(a) Use the trapezoidal rule to estimate the area of the base of the pool.   **2**

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(b) Using the fact that 1 m^3 holds 1000 litres of water, work out how many litres of water will be needed to fill the pool.   **1**

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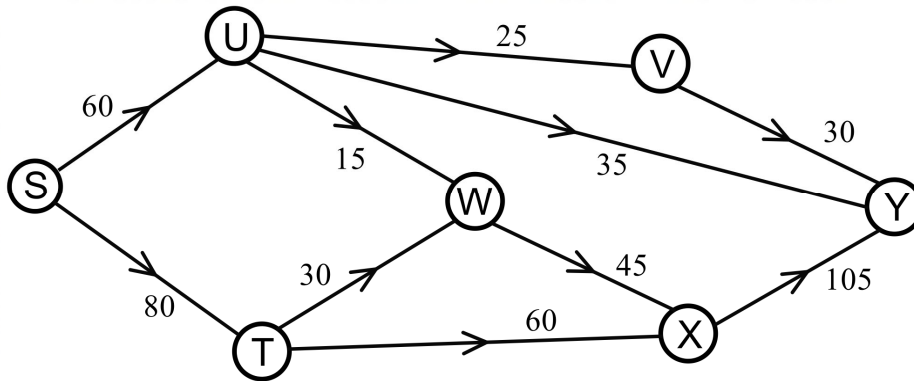……………………………………………………………………………………………………

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Question 44 (4 marks)

A network of pipes carry water from S to Y, and are connected through a series of junctions, U, T, W, V and X.

The maximum flow through each pipe (in Gigalitres per hour) is shown.

(a) What is the excess capacity of the pipe from V to Y?   **1**

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(b) What is the maximum flow through the network?   **2**

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(c) If three pipes could be upgraded to increase their capacity, to maximise the flow   **1**
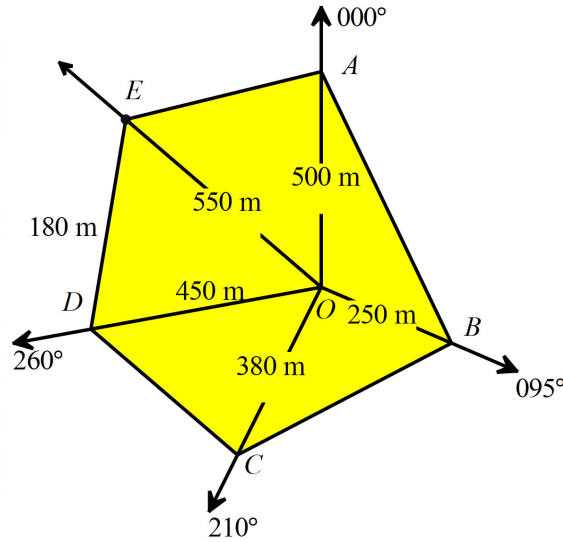   through the network, what would be the new maximum flow?

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Question 45 (5 marks)

Ryan completes a radial survey of a field $ABCDE$, from a central point O. The measurements that he takes are shown on the diagram below.

(a) What is the size of $\angle DOC$?   1

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(b) Calculate the area (in hectares) of the triangle AOB.   1

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(c) Calculate the length of the boundary BC.   1

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(d) What is the bearing of E from O?.   2

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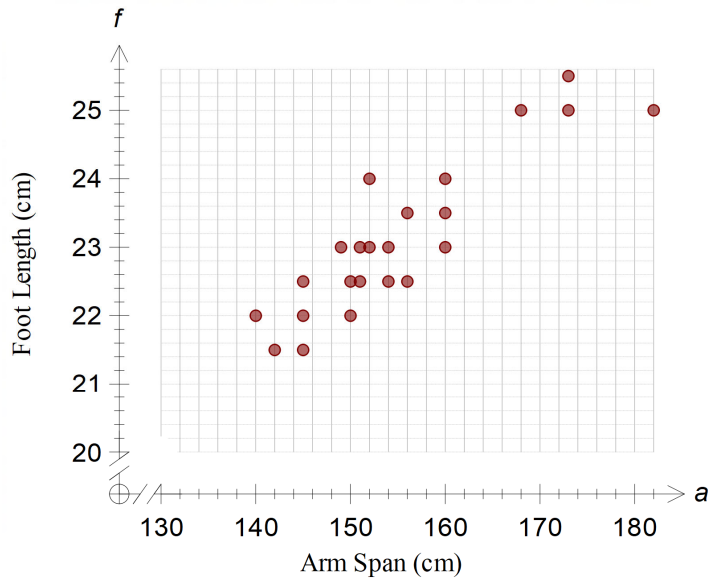
Question 46 (5 marks)

Emily collects data from a sample of students in all years of her school.
She draws the scatterplot below using the data she collected on arm span and foot length.

(a) Emily decides to include herself in the data. Her arm span was 164 cm and her foot   **1**
length was 24 cm.
Plot a point on the graph to represent Emily and label it E.

(b) Emily uses a statistics software package to calculate the correlation coefficient and   **1**
gets a value of 0.9.

Explain what this result tells you about arm span and foot length.

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(c) Draw a line of best fit (by eye) on the graph.   **1**

(d) Find the equation of the line of best fit.   **2**

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Question 47 (4 marks)

Ashleigh has a credit card which charges 18.5% pa compound interest calculated daily, which is debited to the card on the last day of each month. She had $2 500 still owing on her credit card on the 30th June after the June interest was charged to the card.

She decides to pay off the total owing on the card before she makes any further purchases.

She pays $1 200 off the card on 30th June and pays off the remaining balance including interest on the 31st July.

    (a) What is the daily interest rate?   **1**

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    (b) How much did she pay on 31st July?   **2**

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    (c) Calculate the interest for the month of July.   **1**

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End of Examination

Section II   Extra writing space

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

Mathematics Standard 2

REFERENCE SHEET

Measurement

Limits of accuracy

Absolute error $= \dfrac{1}{2} \times$ precision

Upper bound = measurement + absolute error

Lower bound = measurement − 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

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

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

Volume

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

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

Trigonometry

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

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

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

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

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

Financial Mathematics

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

Straight-line method of depreciation

$$S = V_0 - Dn$$

Declining-balance method of depreciation
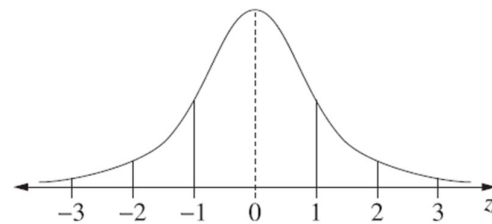
$$S = V_0(1 - r)^n$$

Statistical Analysis

An outlier is a score

less than $Q_1 - 1.5 \times IQR$

or

more than $Q_3 + 1.5 \times IQR$

$$z = \frac{x - \bar{x}}{s}$$

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

#
Western Mathematics

2019 Trial Higher School Certificate Examination
Mathematics Standard 2

Name _____   Teacher _____

Section I – Multiple Choice Answer Sheet

Allow about 25 minutes for this section
Select the alternative A, B, C or D that best answers the question. Fill in the response oval completely.

Sample: 2 + 4 =   (A) 2   (B) 6   (C) 8   (D) 9

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 the correct answer by writing the word **correct** and drawing an arrow as follows.

correct

A ⊗   B ⊗   C ⬭   D ⬭

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 ⬭