Answer **all** questions.

1

RAFFLES
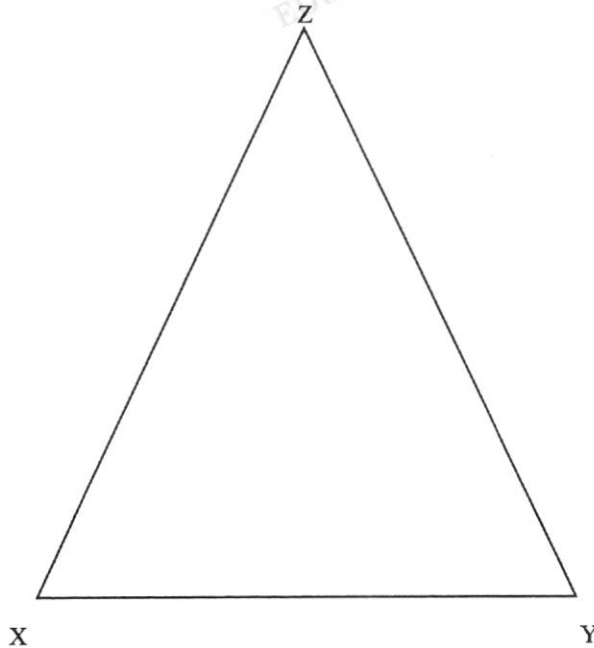
Write down all the letters in the word above that have

(a) one line of symmetry,

(b) rotational symmetry of order two.

Answer (a) .... [1]

(b) .... [1]

2 **(a)** Construct a perpendicular bisector of the straight line *XY*. [1]
 (b) Construct an angle bisector of the angle *XYZ*. [1]

3 Solve this equation $\dfrac{4x+2}{5}=14$.

Answer .... [3]

4 **(a)** By rounding each number to 1 significant figure, estimate the value of

$\dfrac{49.287}{6.1387+3.91}$. You must show your working.

(b) Use your calculator to find the value of $\sqrt{11}$.

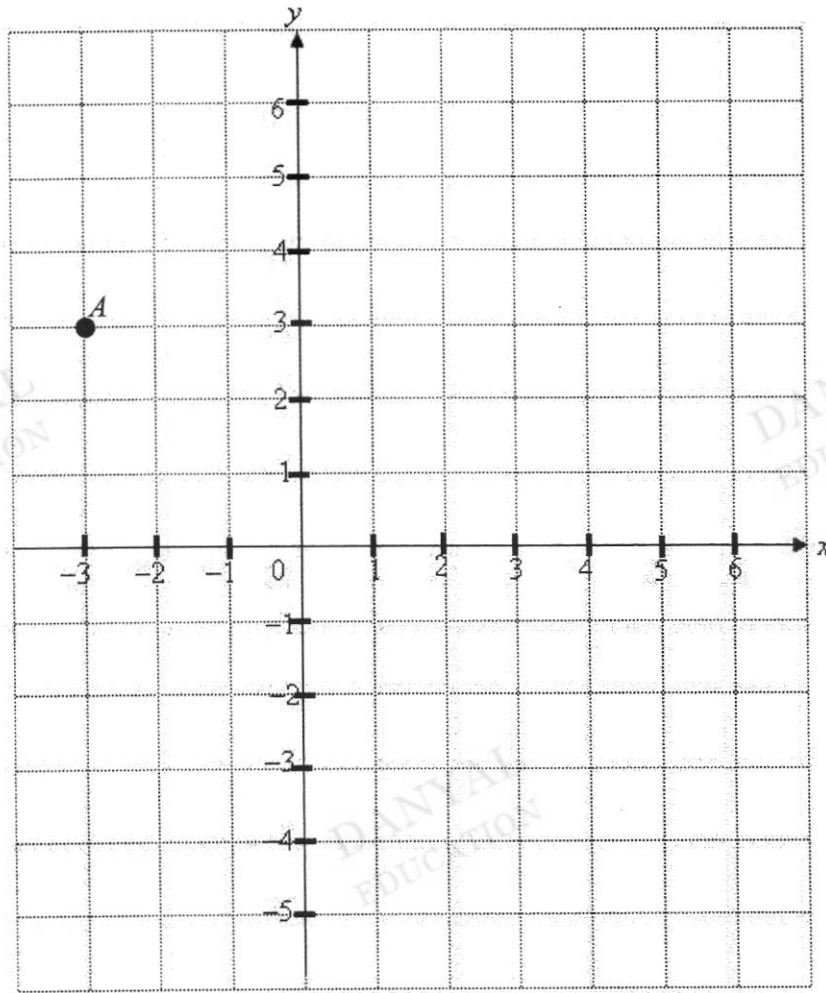*Answer* (......... [2]
a ....
) ......

(......... [1]
b ....
) ......

5   The point A, is marked on the grid below.

(a)   Write down the coordinates of point A.

(b)   Point B is located at $(4,-5)$. Plot and label point B on the grid above.   [1]

(c)   Calculate the gradient of line AB.

Answer   (a)   (........., ...)   [1]

(c)   .... [2]

6

JURONG HEALTH SPA
Usual price:
32 Sessions
for
$640

*NOW
70% off

*For new customers only

The health spa is offering a 70% discount for new customers.

(a) Calculate the cost of the 32 sessions for a new customer.

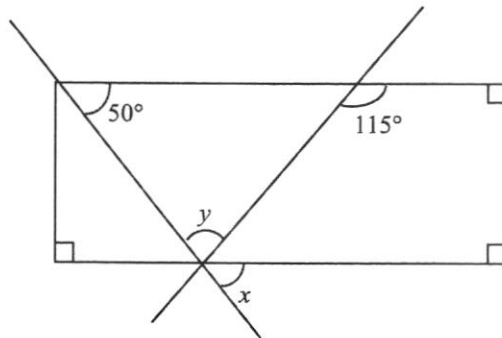(b) For a new customer, what is the cost of each of the 32 sessions after discount?

Answer (a) $............................ [3]

(b) $............................ [1]

7 The figure below is made up of straight lines and a rectangle, find the value of

(a) x,

(b) y.

Answer (a) ∠x = ... ° [1]

(b) ∠y = ... ° [3]

8 A pack of 500 sheets of photocopying paper is 30 cm long, 21.1 cm wide and 5 cm thick.

30 cm
21.1 cm
5 cm
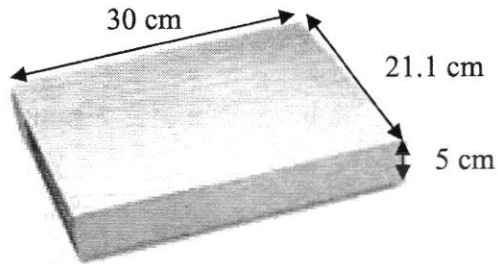
(a) Calculate the thickness of one sheet of paper.

(b) Calculate the volume of one pack of paper.

Answer (a) .... cm [2]

(b) .... cm³ [2]

9 Each week Mr Lee works from home and also at the office. He divides his working hours so that the ratio of the time working from home to that at office is 40 : 60.

(a) Write the ratio 40 : 60 in its simplest form.

(b) In a particular week he worked a total of 45 hours. Calculate how many hours he worked at home and at office respectively?

Answer (a) .... : .... [1]

(b) Home .... hours

Office..................hours [3]

10 Mrs Ong has a recipe for one cheesecake.

250g	Biscuit crumbs
125g	Malted butter
120g	Sugar
450g	Cream cheese
4 teaspoons	Gelatin

(a) How much cream cheese is needed to make 4 such cheesecakes?

(b) How many cheesecakes can she make with 7 kg of biscuit crumbs?

Answer (a) .... g [2]

(b) .... [2]

11 Feng went to Australia on holiday. Before he went, he changed 700 Singapore dollars (SGD) into Australian dollars (AUD). The exchange rate was 1 SGD = 0.773 AUD.

(a) Calculate 67% of 700 Singapore dollars.

(b) Calculate the amount of Australian dollars he received. Give your answer to the nearest dollar.

(c) Feng spent 380 AUD in Australia. When he returned, he changed his remaining Australian dollars into Singapore dollars. The rate of exchange then was 1 SGD = 0.781 AUD. Calculate how much Singapore dollars he would get back. Give your answer to the nearest dollars.

Answer (a) ....SGD [1]

(b) ....AUD [2]

(c) ....SGD [3]

.... *End of Paper* ....

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DUNEARN SECONDARY SCHOOL
Mid-Year Examination 2018
Mathematics
Paper 2

Secondary 2 Normal Technical

Tuesday   **8 May 2018**   **0800 - 0915**   **1 hour 15 mins**

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number on all the work you hand in.
Write in dark blue or black pen. You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions on the question paper.
If working is needed for any question it must be shown with the answer.
Omission of essential working will result in loss of marks.

INFORMATION FOR CANDIDATES

The use of an approved scientific calculator is expected, where appropriate.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 40.

PARENT'S SIGNATURE	FOR EXAMINER'S USE
	40

Setter: **Mr Ang Chin Chuan**

This question paper consists of 10 printed pages, including this cover page.

Answer **all** questions.

1 Work out the value of

(a) 3^7,

(b) $\sqrt{}$.

Answer   (a)............................ [1]

(b)............................ [1]

2

Time	0100	0500	0900	1300	1700	2100
Temperature in °C	−18	−4	5	12	15	−7

The table shows the temperatures at a weather station over a period of 24 hours.

(a) How many degrees did the temperature drop between 1300 and 2100?

(b) How many hours after 0100 did it take for the temperature to rise by 23 degrees?

Answer   (a) ....°C   [1]

(b) ....hours   [1]

3 **(a)** Find the value of 3×2^{-3}. Write the answer as a fraction.

(b) Round 25.6389 correct to 2 decimal places.

Answer   (a) .... [1]

(b) .... [1]

4 Write the following numbers in order of size, **smallest** first.

$$\sqrt[3]{0.45} \qquad 45\% \qquad 0.45^2 \qquad 0.405$$

Answer .... , ... , ... , ... [2]
　　　　smallest　　　　　　　　　largest

5 Use < , > or = to complete each of these statements.

(a) $\dfrac{1}{3}$ .... 0.3 [1]

(b) $12\dfrac{1}{2}\%$ .... $\dfrac{1}{8}$ [1]

6 Use your calculator to work out

(a) $\dfrac{1+2+3}{5+6+7}$, giving your answer as a decimal,

(b) $\dfrac{1}{5}+\dfrac{2}{6}+\dfrac{3}{7}$, giving your answer as a fraction.

Answer (a) .... [1]

(b) .... [1]

7 The graph represents the cost of taxi fares for journeys up to 6 km.

(a) If the fare for a journey of 6 km is $4.00, what is the fare for a journey of
    (i) 800 m,
    (ii) 5.6 km.

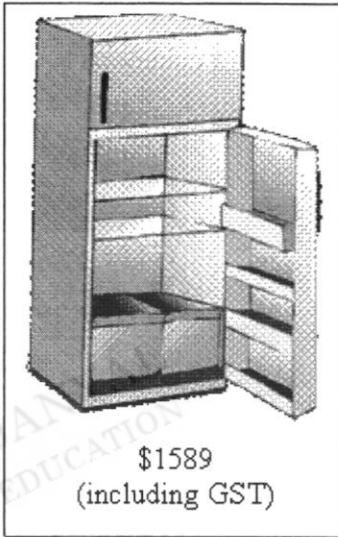**(b)** A passenger paid $2.40 for his taxi fare. How far was the journey?
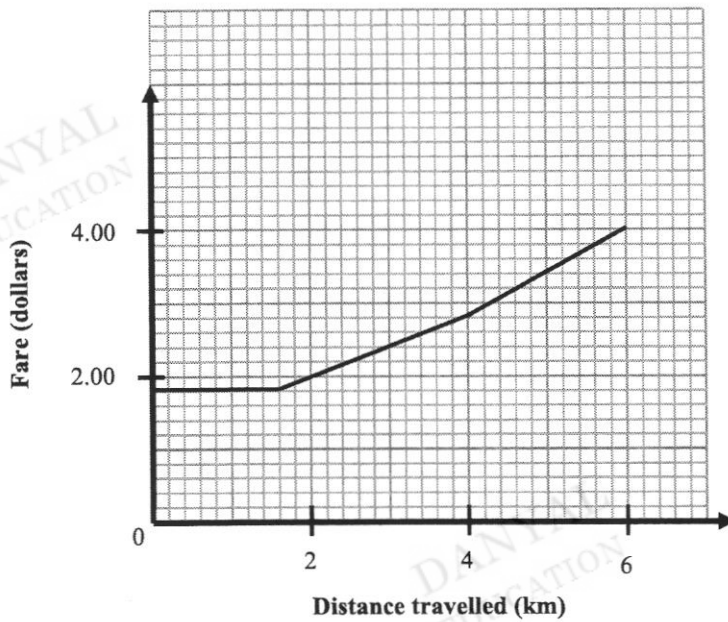
Answer (a)(i) $............................ [1]

        (ii) $............................ [1]

        (b) .... km [1]

8   A refrigerator is advertised in two shops.

Electronic Mania   **Summer Saver**

$1589
(including GST)

$1299
+
7% GST
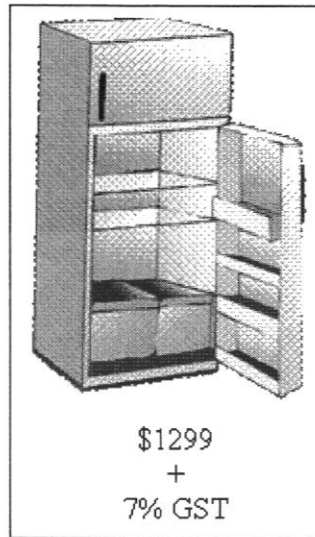
At which shop is the refrigerator cheaper when GST is included and cheaper by how much?

Answer   .... by $.................   [3]

9 **(a)** Solve $4x + 5 = 3$.

(b) $F = \dfrac{m(v - u)}{t}$

Calculate the value of F when $m = 40$, $v = 35$, $u = 23$ and $t = 8$.

Answer (a) .... [2]

(b) .... [2]

10 **(a)** Ellery cycles 30 km in 2 hours 30 minutes. Find Ellery's average speed in km/h.

(b) The time taken to build a wall is inversely proportional to the number of people building it. 8 people can build the wall in 15 days.
How long will it take 12 people to build a wall?

Answer (a) .... km/h [2]

(b) .... [2]

11   The charges for hiring a Duffy boat for a cruise on the Singapore River are shown below.

Price	
$321 per hour	

Additional Services	
Ice Box	$20
Ice	$10
Food and Drink	$25 per person
Table Service	$8 per person

A group of 10 people hires the boat for a cruise from 1800 to 2300. Calculate

(a)   the time taken for the cruise,

(b)   the cost of using all the Additional Services for the group of 10 people.

Answer   (a)   .... hours   [1]
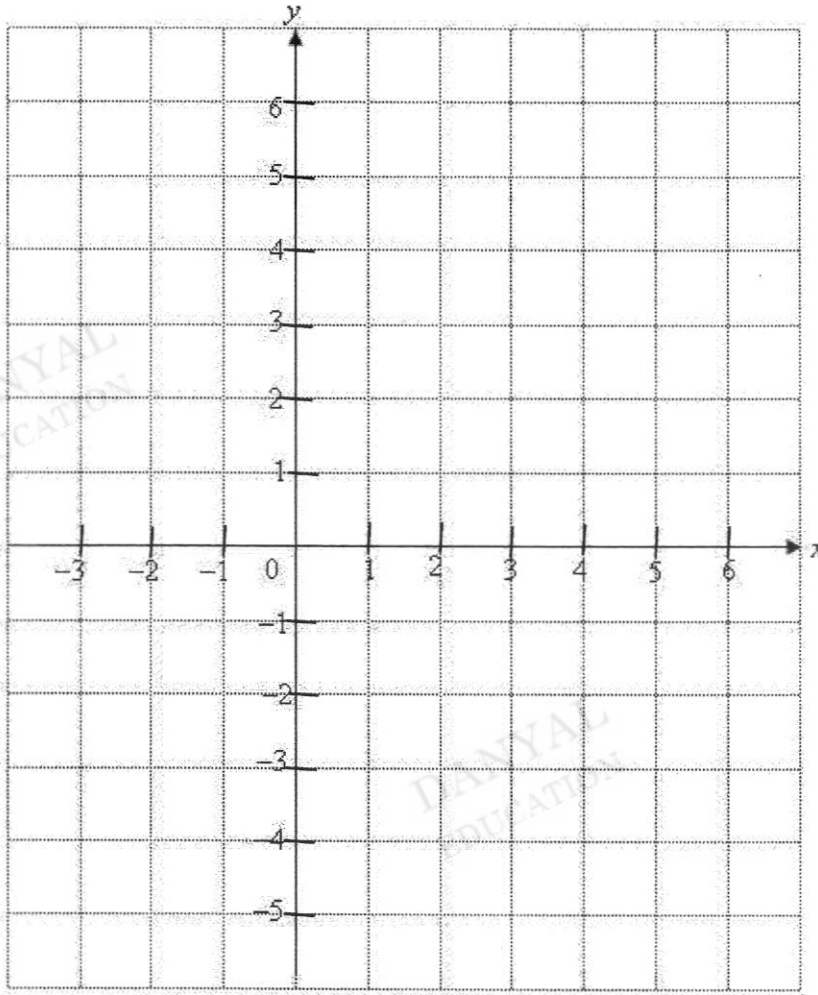
(b) $............................   [3]

12 The equation of a line is given by $y = 1 - 2x$.

(a) On the grid, draw the line $y = 1 - 2x$.   [3]

(b) Write down the gradient of the line.

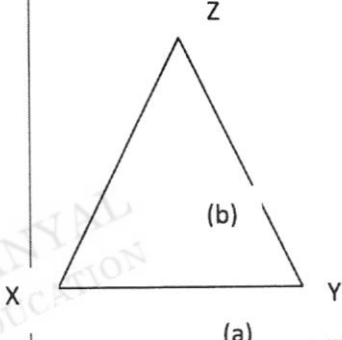*Answer* **(b)** .... [1]

13 Wilson and Chan each had $500 to invest for 3 years.

   (a) Wilson invested his $500 in an account which paid simple interest. At the end of 3 years the value of the investment was $537.50. Calculate

      (i) the interest for 1 year,

      (ii) the percentage rate of interest per annum.

   (b) Chan invested her $500 in an account which paid 2.3% per annum compound interest. Who received the greater interest at the end of 3 years and by how much? Give your answer to the nearest cent.

Answer   (a)(i) $............................   [1]

             (ii) .... %   [2]

             (b) .... by $............   [3]

.... *End of Paper* ....

Qn	Answer	Marks
1a	A,E	B1
1b	S	B1
2		B1
		B1
3	$\dfrac{4}{5}x + \dfrac{2}{5} = 14$	M1
	$\dfrac{4}{5}x = \dfrac{68}{5}$	M1
	$x = 17$	A1
4a	$\dfrac{50}{6+4} = 5$	M1A1
4b	12.2	B1
5a	(- 3 , 3)	B1
5b	Plot of point B	B1
5c	$\dfrac{3-(-5)}{-3-4} = -\dfrac{8}{7}$	M1A1
6a	$1 - 0.7 = 0.3$ $0.3 \times 640 = 192$	M1 M1A1
6b	6	B1
7a	50	B1
7b	$180 - 115 = 65$ $180 - 65 - 50$ $= 65$	M1 M1 A1

8a	$5 \div 500$ $= 0.01$	M1 A1
8b	$30 \times 21.1 \times 5$ $= 3165$	M1 A1
9a	$2 : 3$	B1
9b	$\dfrac{45 \times 2}{5}$ $= 18$ 27	M1 A1 A1
10a	4×450 $= 1800$	M1 A1
10b	$\dfrac{7 \times 1000}{250}$ $= 28$	M1 A1
11a	469	B1
11b	$700 \times 0.773 = 541$	M1A1
11c	$541.1 - 380 = 161.1$ $161.1 \div 0.781 = 206$	M1 M1A1

2NT MY EM P2 Marking Scheme

Qn	Answer	Marks
1a	2187	B1
1b	8.54	B1
2a	19	B1
2b	8	B1
3a	$\dfrac{3}{8}$	B1
3b	25.64	B1
4	$0.45^2, 0.405, 45\%, \sqrt[3]{0.45}$ all correct	B2
	1 mistake	B1
5a	$>$	B1
5b	$=$	B1
6a	0.333	B1
6b	$\dfrac{101}{105}$	B1
7ai	1.80	B1
7aii	3.80	B1
7b	3	B1
8	$1.07 \times 1299 = 1389.93$	M1
	Summer Saver 199.07	A1A1
9a	$4x = -2$	M1
	$x = -0.5$	A1
9b	$\dfrac{40(35 - 23)}{8} = 60$	M1A1
10a	$30 \div 2.5 = 12$	M1A1
10b	1 people : 120 days	M1
	12 people : 10 days	A1
11a	5	B1
11b	$25 \times 10 = 250$	M1
	$8 \times 10 = 80$	M1
	360	A1

12a	Drawing a table or any workings seen	B1
	Plot two correct points	B1
	Drawing the straight line	B1
12b	-2	B1
13ai	12.50	B1
13aii	$\dfrac{12.5}{500} \times 100 = 2.5$	M1A1
13b	$500\left(1 + \dfrac{2.3}{100}\right)^3$ Wilson 2.20	M1 A1A1