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SWISS COTTAGE SECONDARY SCHOOL
SECONDARY ONE EXPRESS
SECOND SEMESTRAL EXAMINATIONS

Name: _____ () Class: Sec 1E_____

MATHEMATICS

Paper 1

4048/01

Monday 5 October 2015

1 hour 15 minutes

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class and index number on all the work you hand in.

Write in dark blue or black pen.

You may use a pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

If working is needed for any question it must be shown with the answer.

Omission of essential working will result in loss of marks.

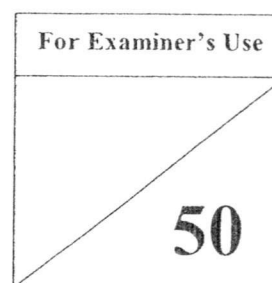
Calculators are **NOT ALLOWED** in this paper.

Give answers in degrees to one decimal place.

For π , use 3.142 unless the question requires the answer in terms of π .

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 50.



This question paper consists of 10 printed pages.

Setter: Mr Ngoh Kia Joon

Vetter: Miss Zoe Pow

[Turn over

148

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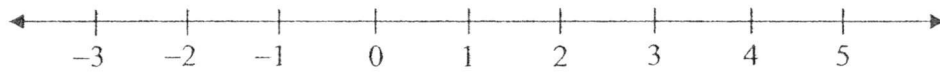
Answer **all** the questions.

- 1 Showing your working clearly, evaluate $5 - \left(\frac{2}{0.1} - 14\right)^2$.

Answer [2]

- 2 Represent the numbers -2.5 , $\sqrt{4}$, 0.7 and $4\frac{1}{5}$ on the number line below.

Answer



[2]

- 3 (a) (i) Express 300 as a product of its prime factors.

Answer (a)(i) $300 = \dots\dots\dots$ [2]

- (ii) Given that $300k$ is a perfect square, write down the smallest possible integer value of k .

Answer (a)(ii) $k = \dots\dots\dots$ [1]

- (b) Farmer Sam has 54 apples, 132 oranges and 30 pears. He wishes to distribute each type of fruits equally into boxes.

Find the largest number of boxes that farmer Sam needs.

Answer (b)boxes [2]

- 4 (a) Express $\frac{4}{25}$ as a percentage.

Answer (a)% [1]

- (b) Jonathan spent 24 minutes running in a 2-hour gym session.

Express the time spent running as a percentage of the total time spent in the gym session.

Answer (b)% [2]

- 5 Simplify the following expressions

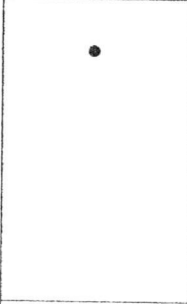
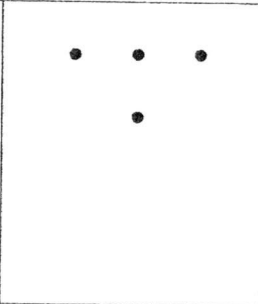
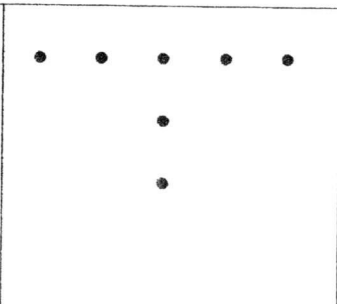
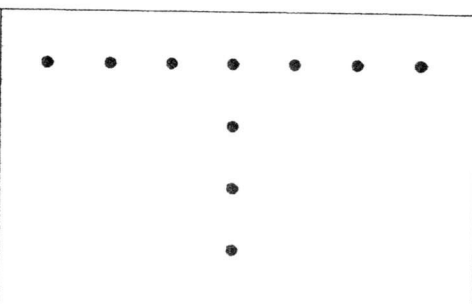
- (a) $4(2a - 3) - 11(2 + a),$

Answer (a) [2]

(b) $\frac{2(5m+n)}{5} - \frac{2m-n}{2}$.

Answer (b) [3]

6 The following diagram shows a series of figures formed using dots.

			
Figure 1	Figure 2	Figure 3	Figure 4

(a) Draw Figure 5 in the answer space below.

Answer

[1]

(b) Write down an expression, in terms of n , for the number of dots in Figure n .

Answer (b) [1]

(c) Use your answer to part (b) to find the number of dots in Figure 30.

Answer (c) [1]

7 Factorise the following expressions completely

(a) $6xy - 12y^2 + 3y$,

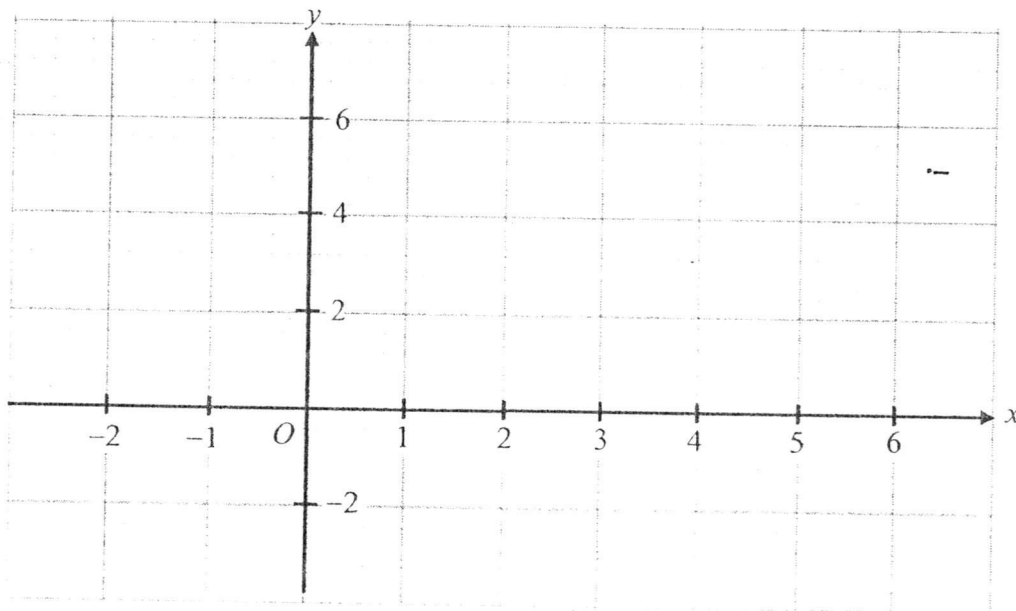
Answer (a) [1]

(b) $14 - 28y - a + 2ay$.

Answer (b) [2]

8 (a) Plot the points $A(-2, 1)$, $B(5, 1)$, $C(5, 6)$ and $D(0, 6)$ in the graph below. [2]

Answer



(b) Name the shape of figure $ABCD$.

Answer (b) [1]

9 Solve the following equations

(a) $7(2x - 5) = 4(x + 1),$

Answer (a) [2]

(b) $\frac{x-9}{2} + 3 = \frac{3x+1}{5}.$

Answer (b) [3]

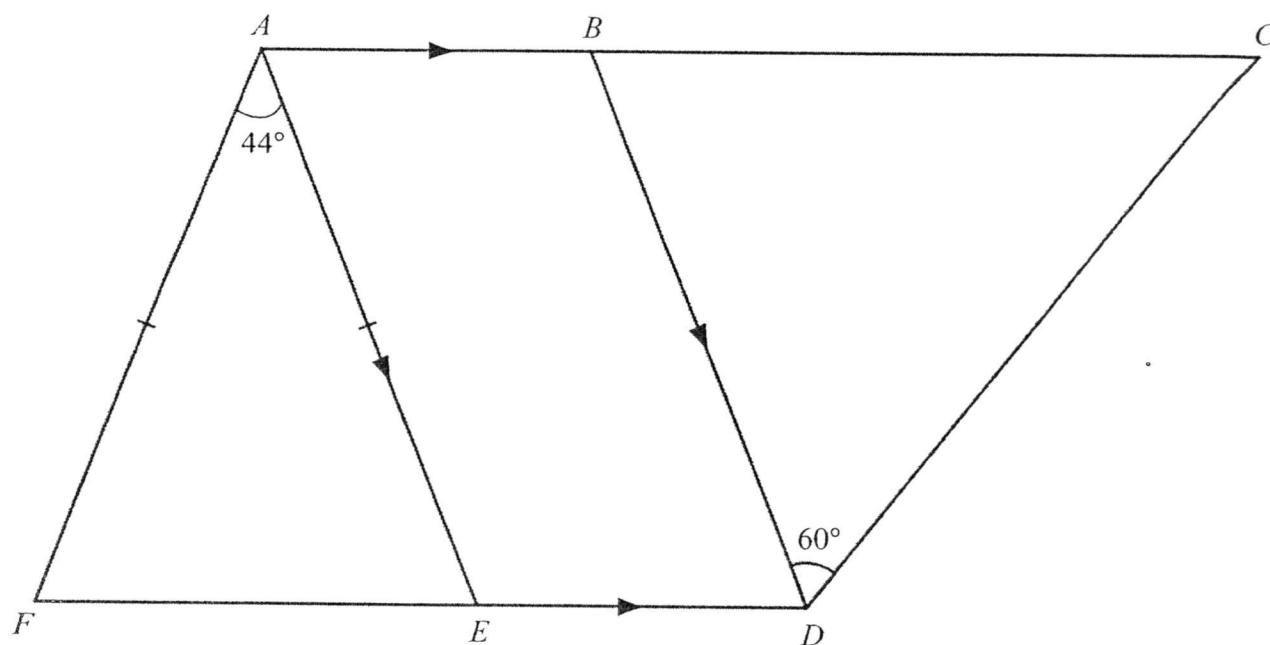
10 (a) Solve the inequality $4x + 12 < 65.$

Answer (a) [2]

(b) Hence, state the largest possible value of x if x is a prime number.

Answer (b) $x =$ [1]

- 11** In the diagram below, AFE is an isosceles triangle, $ABDE$ is a parallelogram, AC and FD are straight lines, $\angle FAE = 44^\circ$ and $\angle BDC = 60^\circ$.



Giving your reasons, find

- (a) $\angle AEF$,

Answer (a)° [1]

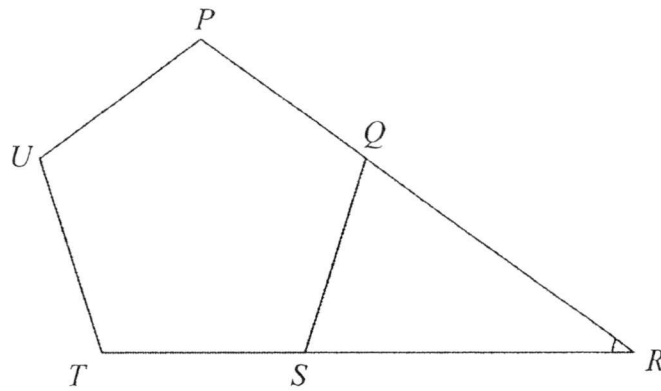
- (b) $\angle DBC$,

Answer (b)° [2]

- (c) $\angle BCD$.

Answer (c)° [1]

- 12 The diagram below shows a **regular** pentagon $PQSTU$ and triangle QRS . PQR and TSR are straight lines.



Find $\angle QRS$.

Answer $^{\circ}$ [3]

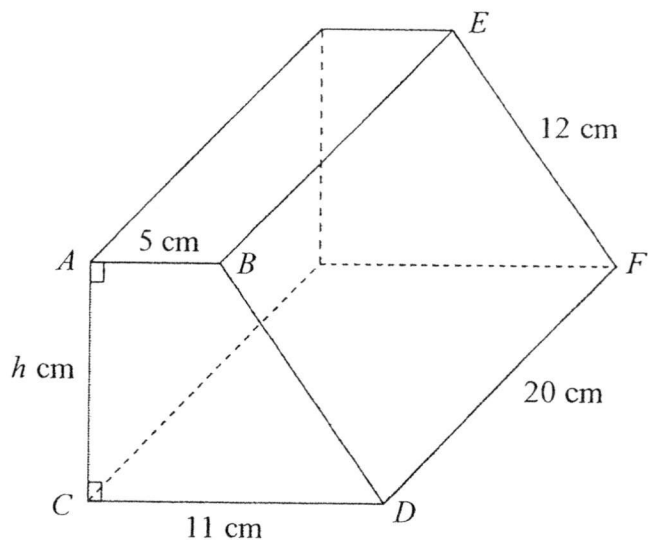
- 13 The table below shows the number of meals eaten in a day by a group of students.

Number of meals	2	3	4	5	6
Number of students	6	11	x	1	2

Given that the mean number of meals eaten in a day is 3.5, find the value of x .

Answer $x =$ [3]

- 14 The diagram below shows a trapezoidal prism. $AB = 5$ cm, $CD = 11$ cm, $DF = 20$ cm, $EF = 12$ cm and $AC = h$ cm.



- (a) Show that the cross-sectional area of the trapezoidal prism is $8h$ cm².

Answer

[1]

- (b) Given that the volume of the trapezoidal prism is 1600 cm³, calculate the value of h .

Answer (b) $h = \dots\dots\dots$ [2]

- (c) Hence, find the total surface area of the trapezoidal prism.

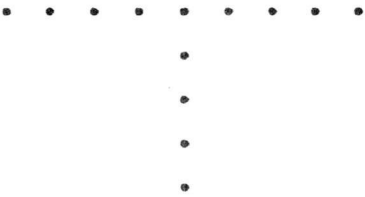
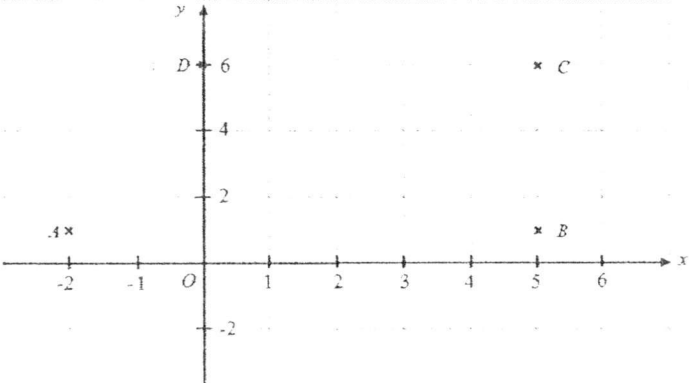
Answer (c)cm² [3]

End of Paper

Qn No.	Solution
1	-31
2	
3	(a)(i) $588 = 2^2 \times 3 \times 5^2$ (a)(ii) 3 (b) Largest no. of boxes = 6
4	(a) 16% (b) 20%
5	(a) $-3a - 34$ (b) $\frac{10m + 9n}{10}$
6	(a) (b) $3n - 2$ (c) 88
7	(a) $3y(2x - 4y + 1)$ (b) $(14 - a)(1 - 2y)$
8	(a) (b) Trapezium
9	(a) $x = 3.9$ (b) $x = -17$
10	(i) $x < 13\frac{1}{4}$ (ii) $x = 13$

11	(a) $\angle AEF = 68^\circ$ (b) $\angle BDE = 68^\circ$ (c) $\angle BCD = 52^\circ$
12	$\angle QRS = 36^\circ$
13	$x = 16$
14	(a) Area of trapezium = $8h \text{ cm}^2$ (Shown) (b) $h = 10$ (c) Total surface area = 920 cm^2

Qn No.	Solution	Marks																								
1	$5 - \left(\frac{2}{0.1} - 14\right)^2$ $= 5 - (6)^2$ $= 5 - 36$ $= -31$	M1 M1 A1																								
2	A horizontal number line with arrows at both ends. It has tick marks at -3, -2, -1, 0, 1, 2, 3, 4, and 5. Four points are marked with dots and labeled above them: -2.5 (between -3 and -2), 0.7 (between 0 and 1), $\sqrt{4}$ (at 2), and $4\frac{1}{5}$ (between 4 and 5).	B2 – 1 mistake deduct 1 mark .																								
3	(a)(i) <table><tr><td>2</td><td>300</td></tr><tr><td>2</td><td>150</td></tr><tr><td>3</td><td>75</td></tr><tr><td>5</td><td>25</td></tr><tr><td>5</td><td>5</td></tr><tr><td></td><td>1</td></tr></table> $588 = 2^2 \times 3 \times 5^2$ (a)(ii) 3 (b) <table><tr><td>2</td><td>54</td><td>132</td><td>30</td></tr><tr><td>3</td><td>27</td><td>66</td><td>15</td></tr><tr><td></td><td>9</td><td>22</td><td>5</td></tr></table> Largest no. of boxes = 6	2	300	2	150	3	75	5	25	5	5		1	2	54	132	30	3	27	66	15		9	22	5	M1 A1 B1 M1 A1
2	300																									
2	150																									
3	75																									
5	25																									
5	5																									
	1																									
2	54	132	30																							
3	27	66	15																							
	9	22	5																							
4	(a) $\frac{4}{25} \times 100$ $= 16\%$ (b) 2 hours = 120 mins $\frac{24}{120} \times 100$ $= 20\%$	B1 M1 A1																								

5	(a) $4(2a - 3) - 11(2 + a)$ $= 8a - 12 - 22 - 11a$ $= -3a - 34$ (b) $\frac{10m + 2n}{10} - \frac{2m - n}{10}$ $= \frac{20m + 4n}{10} - \frac{10m - 5n}{10}$ $= \frac{20m + 4n - (10m - 5n)}{10}$ $= \frac{20m + 4n - 10m + 5n}{10}$ $= \frac{10m + 9n}{10}$	M1 A1 M1 (common denominator) M1 (expansion of -) A1
6	(a)  (b) $3n - 2$ (c) $3(30) - 2 = 88$	B1 B1 B1
7	(a) $6xy - 12y^2 + 3y$ $= 3y(2x - 4y + 1)$ (b) $14 - 28y - a + 2ay$ $= 14(1 - 2y) - a(1 - 2y)$ $= (14 - a)(1 - 2y)$	B1 M1 (identical group) A1
8	(a)  (b) Trapezium	B2 (2 marks for 4 correct, 1 mark for 3 correct) B1

9	(a) $7(2x - 5) = 4(x + 1)$ $14x - 35 = 4x + 4$ $10x = 39$ $x = 3.9$ (b) $\frac{x-9}{2} + 3 = \frac{3x+1}{5}$ $\frac{x-9+6}{2} = \frac{3x+1}{5}$ $5(x-3) = 2(3x+1)$ $5x-15 = 6x+2$ $x = -17$	M1 (expansion) A1 M1 (Removal of denominator) M1 (Expansion) A1
10	(i) $4x + 12 < 65$ $4x < 65 - 12$ $4x < 53$ $x < 13\frac{1}{4}$ (ii) $x = 13$	M1 A1 B1
11	(a) $\angle AEF = \frac{180 - 44}{2}$ (Base angle of isos. Δ) $= 68^\circ$ (b) $\angle AEF = \angle BDE$ (Corr. $\angle$s, $AE \parallel BD$) $\angle BDE = \angle DBC$ (Alt $\angle$s, $AE \parallel BD$) $= 68^\circ$ (c) $\angle BCD = 180 - 68 - 60$ (Angle sum of triangle) $= 52^\circ$	B1 M1 A1 B1
12	1 interior angle $= \frac{(5-2) \times 180}{5}$ $= 108^\circ$ $\angle QSR = \angle SQR = 180 - 108$ (Adj. angle on a str line) $= 72^\circ$ $\angle QRS = 180 - 72 - 72$ ($\angle$s sum of triangle) $= 36^\circ$	M1 (formula for 1 int. angle) M1 (For finding both angles) A1

13	$\frac{(2 \times 6) + (3 \times 11) + 4x + (5 \times 1) + (6 \times 2)}{6 + 11 + x + 1 + 2} = 3.5$ $\frac{62 + 4x}{20 + x} = 3.5$ $62 + 4x = 70 + 3.5x$ $0.5x = 8$ $x = 16$	M1 (Correct Formula) M1 (remove deno.) A1
14	(a) $\text{Area of trapezium} = \frac{1}{2} \times (5 + 11) \times h$ $= 8h \text{ cm}^2 \text{ (Shown)}$ (b) $8h \times 20 = 1600$ $160h = 1600$ $h = 10$ (c) $\text{Area of trapezium} = 8 \times 10$ $= 80 \text{ cm}^2$ $\text{Area of sides} = (5 + 10 + 11 + 12) \times 20$ $= 760 \text{ cm}^2$ $\text{Total surface area} = 760 + 2(80)$ $= 920 \text{ cm}^2$	B1 M1 (formation of formula) A1 M1 M1 A1



SWISS COTTAGE SECONDARY SCHOOL
SECONDARY ONE EXPRESS
SECOND SEMESTRAL EXAMINATIONS

Name: _____ () Class: Sec 1E_____

MATHEMATICS

Paper 2

4048/02

Wednesday 7 October 2015

1 hour 15 minutes

Additional materials: Graph Paper (1 sheet)

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class and index number on all the work you hand in.

Write in dark blue or black pen.

You may use a pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

If working is needed for any question it must be shown with the answer.

Omission of essential working will result in loss of marks.

The use of an approved scientific calculator is expected, where appropriate.

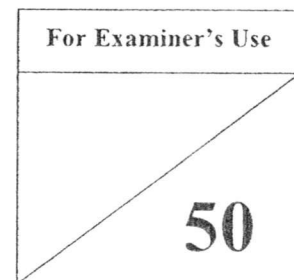
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

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 50.



This question paper consists of 9 printed pages.

Setter: Mr Wilson Wee

Vetter: Ms Zoe Pow

[Turn over

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Answer **all** the questions.

1 (a) Calculate $\frac{9.52 + \sqrt{24.03}}{\sqrt[3]{52} - 1.28}$.

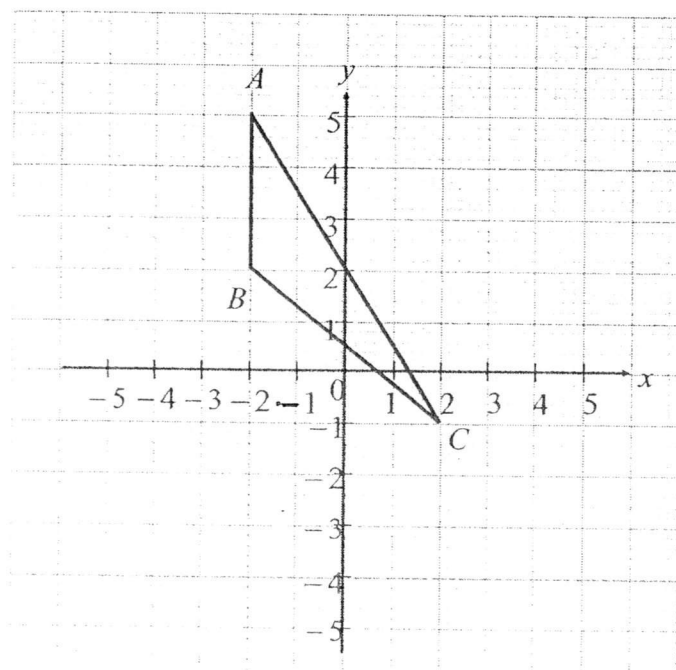
Write down the first five digits on your calculator display.

Answer (a) [1]

(b) Write your answer to part (a) correct to 2 significant figures.

Answer (b) [1]

2 The graph below shows triangle ABC .



Find

(a) the gradient of AC ,

Answer (a) [1]

(b) the area of $\triangle ABC$.

Answer (b) unit^2 [2]

- 3 The table shows the record of the scores of 20 students in a test.

24	18	28	33	25	29	25	22	30	18
26	36	30	30	26	28	23	19	31	39

The total score was 40 marks and the scores were tabulated in an ordered stem-and-leaf diagram below.

Answer (a)

Stem	Leaf
1	8
2	
3	

Key: 1 | 8 represents 18 marks

- (a) Complete the stem-and-leaf diagram.

[1]

- (b) Find

- (i) the modal score,

Answer (b)(i) [1]

- (ii) the median score.

Answer (b)(ii) [1]

- (c) The passing mark for the test is 20. The scores of another 5 students were added to the record and the percentage of the number of students who passed dropped to 76%. How many of the newly added students passed the test?

Answer (c) students [2]

- 4 The frequency table below shows the monthly salary of 30 workers in a company.

Answer (a)

Salary (\$ S)	Mid-value (x)	Frequency (f)	fx
$1000 < S \leq 2000$		9	
$2000 < S \leq 3000$		14	
$3000 < S \leq 4000$		7	
		Total = 30	Total =

- (a) Complete the table above.

[2]

- (b) Hence, calculate an estimate of the mean monthly salary.

Answer (b) \$ [2]

- 5 The original price of a bicycle in January was \$212. In February, its price increased by 15%. In March, its price was 20% lesser than the price in February. Calculate the price of the bicycle in March.

Answer \$ [3]

- 6 Gopal sold x chicken pies at \$2 each and 32 muffins at \$1.50 each at his school's charity fair. At the end of the day, he received at least \$135.

(a) Write down an inequality in terms of x .

Answer (a) [1]

(b) Solve the inequality to find the minimum number of chicken pies sold.

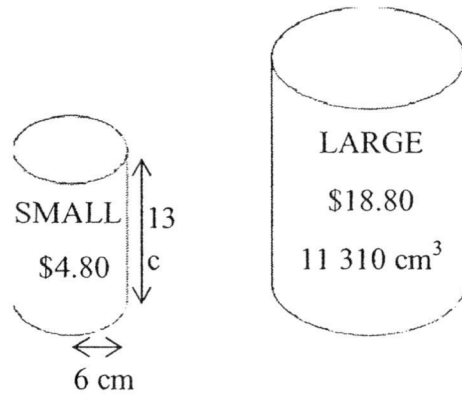
Answer (b) chicken pies [2]

- 7 The ratio of the weights of Beatrice, Linda and Henry was 20 : 24 : 33. After 1 year, they weighed again and found that only Linda's weight was unchanged. The ratio of the weights of Beatrice, Linda and Henry became 7 : 8 : 13. Given that Linda weighs 48 kg, find the change in weight for Beatrice and Henry respectively.

Answer Beatrice: kg

Henry: kg [4]

- 8 Two different sizes of tins of fruit juice are shown below. The small tin has a radius of 6 cm and a height of 13 cm. The price of the fruit juice is given on the respective tins.



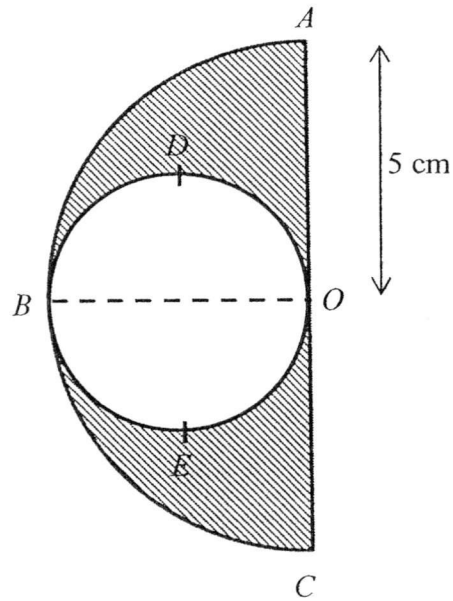
- (a) Find the volume of the small tin.

Answer (a) cm³ [2]

- (b) Which size of tin gives the better value?
You must show all your working clearly.

Answer (b) tin [2]

- 9 A piece of metal is cut into the shape as shown in the diagram below. $AOCB$ is a semicircle of radius 5 cm and $BDOE$ is an inscribed circle of the semicircle with OB as the diameter.



- (a) Calculate the area of the shaded region.

Answer (a) cm^2 [3]

- (b) Calculate the perimeter of the shaded region.

Answer (b) cm [3]

- 10 A lorry and a van were travelling towards each other at uniform speeds. They were 210 km apart at 1300 h and passed each other at 1430 h. The speed of the van was 75 km/h. Find the speed of the lorry.

Answer km/h [4]

- 11 (a) Tap *A* can fill a tank in 10 minutes.
What fraction of the tank is filled in 1 minute?

Answer (a) [1]

- (b) Tap *B* can fill a tank in 5 minutes.
What fraction of the tank is filled in 1 minute?

Answer (b) [1]

- (c) How long will it take to fill the tank when both taps *A* and *B* are turned on?

Answer (c) min [2]

12 Answer the whole of this question on a piece of graph paper.

The table below shows some values for the equation $y = 2 - 2x$.

x	-2	-1	0	1	2
y	6	p	2	0	q

- (a) Calculate the values of p and q . [2]
- (b) Using a scale of 2 cm to 1 unit for the y -axis and 4 cm to 1 unit for the x -axis, draw the graph $y = 2 - 2x$ for $-2 \leq x \leq 2$. [3]
- (c) Using your graph, find the value of x when $y = 3.5$. [1]
- (d) On the same axes, draw the line $x = -1.5$. Find the coordinates of the point of intersection of the two lines. [2]

End of Paper

Answer Key for Math 1E SA2 P2 2015

Qn	Marking Point																							
1(a)	5.8805																							
1(b)	5.9																							
2(a)	$-1\frac{1}{2}$																							
2(b)	6 units ²																							
3(a)	<table><tr><td>Stem</td><td>Leaf</td></tr><tr><td>1</td><td>8 8 9</td></tr><tr><td>2</td><td>2 3 4 5 5 6 6 8 8 9</td></tr><tr><td>3</td><td>0 0 0 1 3 6 9</td></tr></table> Key: 1 8 represents 18 marks				Stem	Leaf	1	8 8 9	2	2 3 4 5 5 6 6 8 8 9	3	0 0 0 1 3 6 9												
Stem	Leaf																							
1	8 8 9																							
2	2 3 4 5 5 6 6 8 8 9																							
3	0 0 0 1 3 6 9																							
3(b)(i)	30 marks																							
3(b)(ii)	27 marks																							
3(c)	2																							
4(a)	<table><tr><th>Salary (\$S)</th><th>Mid-value (x)</th><th>Frequency (f)</th><th>fx</th></tr><tr><td>$1000 < S \leq 2000$</td><td>1500</td><td>9</td><td>13500</td></tr><tr><td>$2000 < S \leq 3000$</td><td>2500</td><td>14</td><td>35000</td></tr><tr><td>$3000 < S \leq 4000$</td><td>3500</td><td>7</td><td>24500</td></tr><tr><td></td><td></td><td>Total = 30</td><td>Total = 73000</td></tr></table>				Salary (\$S)	Mid-value (x)	Frequency (f)	fx	$1000 < S \leq 2000$	1500	9	13500	$2000 < S \leq 3000$	2500	14	35000	$3000 < S \leq 4000$	3500	7	24500			Total = 30	Total = 73000
Salary (\$S)	Mid-value (x)	Frequency (f)	fx																					
$1000 < S \leq 2000$	1500	9	13500																					
$2000 < S \leq 3000$	2500	14	35000																					
$3000 < S \leq 4000$	3500	7	24500																					
		Total = 30	Total = 73000																					
4(b)	\$ 2433.33																							
5	\$195.04																							
6(a)	$2x + 48 \geq 135$																							
6(b)	$x \geq 43.5$																							
	Minimum number of chicken pies sold is 44.																							
7	Change in weight for Beatrice = 2 kg																							
	Change in weight for Henry = 12 kg																							

8(a)	1470 cm^3
8(b)	Large tin is cheaper.
9(a)	19.6 cm^2
9(b)	41.4 cm
10	65 km/h
11(a)	$\frac{1}{10}$
11(b)	$\frac{1}{5}$
11(c)	$3\frac{1}{3} \text{ min}$
12(a)	$p = 4 \text{ and } q = -2$
12(b)	
12(c)	$x = -0.75$
12(d)	$(-1.5, 5)$

Marking Scheme for Math 1E SA2 P2 2015

Qn	Marking Point		Marks Awarded	Remarks																				
1(a)	5.8805		B1																					
1(b)	5.9		B1																					
2(a)	Gradient = $-\frac{6}{4}$ $= -1\frac{1}{2}$		B1																					
2(b)	Area = $\frac{1}{2} \times 3 \times 4$ $= 6 \text{ units}^2$		M1 A1																					
3(a)	<table><tr><th>Stem</th><th>Leaf</th></tr><tr><td>1</td><td>8 8 9</td></tr><tr><td>2</td><td>2 3 4 5 5 6 6 8 8 9</td></tr><tr><td>3</td><td>0 0 0 1 3 6 9</td></tr></table> Key: 1 8 represents 18 marks	Stem	Leaf	1	8 8 9	2	2 3 4 5 5 6 6 8 8 9	3	0 0 0 1 3 6 9	B1														
Stem	Leaf																							
1	8 8 9																							
2	2 3 4 5 5 6 6 8 8 9																							
3	0 0 0 1 3 6 9																							
3(b)(i)	Modal score = 30 marks		B1																					
3(b)(ii)	Median score = $\frac{26+8}{2}$ $= 27 \text{ marks}$		B1																					
3(c)	Number of students who passed the test $= \frac{76}{100} \times 25$ $= 19$ New students who passed the test $= 19 - 7$ $= 2$		M1 A1																					
4(a)	<table><tr><th>Salary (\$S)</th><th>Mid-value (x)</th><th>Frequency (f)</th><th>fx</th></tr><tr><td>$1000 < S \leq 2000$</td><td>1500</td><td>9</td><td>13500</td></tr><tr><td>$2000 < S \leq 3000$</td><td>2500</td><td>14</td><td>35000</td></tr><tr><td>$3000 < S \leq 4000$</td><td>3500</td><td>7</td><td>24500</td></tr><tr><td></td><td></td><td>Total = 30</td><td>Total = 73000</td></tr></table>			Salary (\$S)	Mid-value (x)	Frequency (f)	fx	$1000 < S \leq 2000$	1500	9	13500	$2000 < S \leq 3000$	2500	14	35000	$3000 < S \leq 4000$	3500	7	24500			Total = 30	Total = 73000	M1 – Correct values for Mid-value column A1– Correct values for fx column
Salary (\$S)	Mid-value (x)	Frequency (f)	fx																					
$1000 < S \leq 2000$	1500	9	13500																					
$2000 < S \leq 3000$	2500	14	35000																					
$3000 < S \leq 4000$	3500	7	24500																					
		Total = 30	Total = 73000																					

4(b)	Mean monthly salary = $\frac{73000}{30}$ = \$ 2433.33	M1 A1	
5	Price in February = $\frac{115}{100} \times 212$ = \$243.80 Price in March = $\frac{80}{100} \times 243.80$ = \$195.04	M1 M1 A1	
6(a)	$2x + 48 \geq 135$	B1	
6(b)	$2x + 48 \geq 135$ $2x \geq 87$ $x \geq \frac{87}{2}$ $x \geq 43.5$ Minimum number of chicken pies sold is 44.	M1 A1	
7	Beatrice : Linda : Henry Old ratio 20 : 24 : 33 New ratio 7 : 8 : 13 = 21 : 24 : 39 24 units ----- 48 kg 1 unit ----- $\frac{48}{24}$ = 2 kg Beatrice increased in weight by $21 - 20 = 1$ unit Henry increased in weight by $39 - 33 = 6$ units Change in weight for Beatrice = 2 kg Change in weight for Henry = 6×2 = 12 kg	M1 M1 A1 A1	

8(a)	Volume of small tin $= \pi \times 6^2 \times 13$ $= 1470 \text{ cm}^3$	M1 A1	
8(b)	Price per cm^3 for small tin $= 480 \div 1470$ $= 0.33 \text{ cents}$ Price per cm^3 for large tin $= 1880 \div 11310$ $= 0.17 \text{ cents}$ Large tin is cheaper.	M1 A1	Find the price per unit volume for both tins.
9(a)	Area of semicircle $ABC = \frac{1}{2} \times \pi \times 5^2 \text{ cm}^2$ $= 39.27 \text{ cm}^2$ Area of circle $BEOD = \pi(2.5)^2 \text{ cm}^2$ $= 19.63 \text{ cm}^2$ Area of shaded region $= 39.27 - 19.63 \text{ cm}^2$ $= 19.6 \text{ cm}^2$	M1 M1 A1	
9(b)	Arc length of semicircle $ABC = \frac{1}{2} \times 2 \times \pi \times 5$ $= 15.71 \text{ cm}$ Circum. of circle $BEOD = 2 \times \pi \times 2.5$ $= 15.71 \text{ cm}$ Perimeter of the shaded region $= 15.71 + 15.71 + 5 + 5$ $= 41.4 \text{ cm}$	M1 M1 A1	
10	Distance travelled by van $= 75 \times 1.5$ $= 112.5 \text{ km}$ Distance travelled by the lorry $= 210 - 112.5$ $= 97.5 \text{ km}$ Speed of the lorry $= 97.5 \div 1.5$ $= 65 \text{ km/h}$	M1 M1 M1 A1	

