

Third Term Test - Grade 9 - 2019
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Name/Index No: Mathematics Time: 02 hours

Part I

◆ Answer all the questions

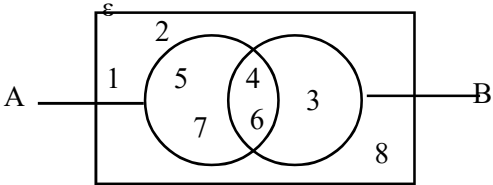
(1) Write the next two terms of the number pattern.

37, 33, 29,,

(2) Simplify. $\frac{3a}{2} - \frac{a}{2}$

(3) Write set A' with elements.

A' =



(4) Solve. $\frac{P+6}{2} = 7$

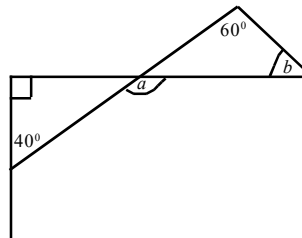
(5) Convert the number 2.65×10^4 written in scientific notation to general form.

(6) Find the value of x. $15 : x = 3 : 8$

(7) Simplify and write the answer with positive indices.

$$\frac{4a^3}{8a^{-5}}$$

(8) Find the values of a and b



(9) Select the correct answers of 23.05 l

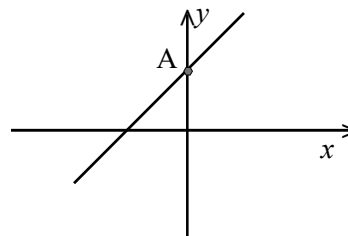
(i) 23 l 5ml

(ii) 23050ml

(iii) 23500ml

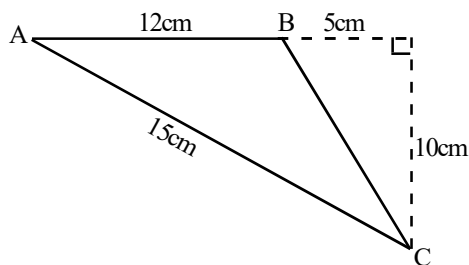
(iv) 23 l 50ml

(10) If the equation of a given graph is $y = 2x + 4$.
Find the coordinates of a point A.



(11) The sum of the interior angles of a polygon of n sides is $180^\circ(n - 2)$, If the sum of the interior angles of a polygon is $180^\circ \times 5$, Find the number of sides it has.

(12) Find the area of a triangle ABC.



(13) Subtract the expression $3a - 5$ from the expression $4a + 5$.

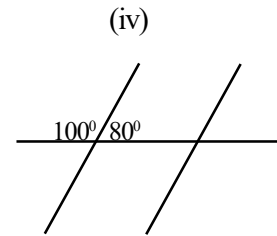
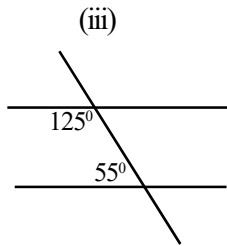
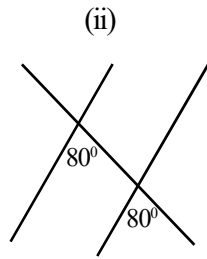
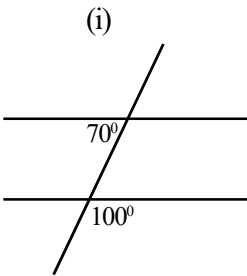
(14) From this distribution,

Class interval	Frequency
10 - 16	3
16 - 22	5
22 - 28	7

(i) Find the size of the class interval.

(ii) What is the modal class.

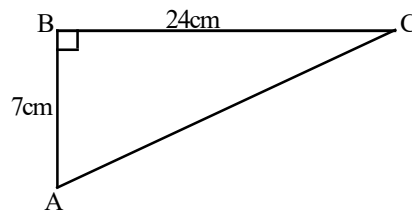
(15) Select and underline the pairs of parallel lines from the following diagrams.



(16) A box contains 24 red and black colour hair clips. which are equal in size and shape. A clip is taken out at random. If the probability of obtaining a red colour hair clip is $\frac{7}{12}$, Find the number of black colour clips in the box.

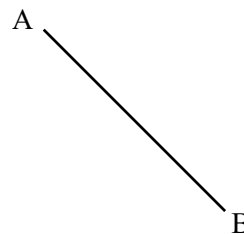
(17) Write 11010_{two} as a decimal number.

(18) Find the length of AC.



(19) 7th term is the median of a data distribution. Which term is the median when applying 4 other term to this distribution.

(20) Using the knowledge of loci, construct a line to find the mid point of the line segment AB. and name it as P.

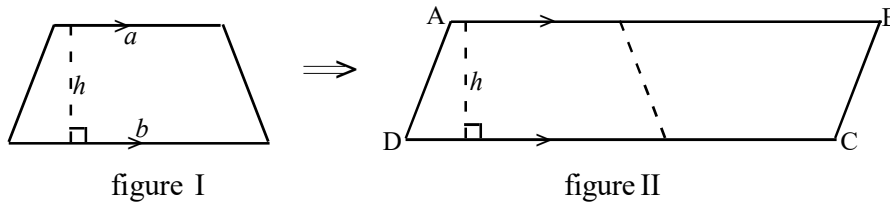


Part II

◆ Answer 1st question and four other questions.

(1) The following activity can be done to find the area of a trapezium.

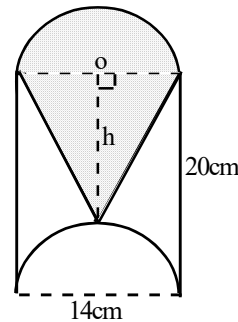
(a) A trapezium and a composite figure which is combining two such trapeziums are shown by the following I and II figures.



- (i) Name the above figure II.
- (ii) Write the length of AB in term of a and b .
- (iii) Express the area of a composite figure in terms of a , b and h and using this expression construct the formula for the area of a trapezium.
- (iv) If $a = 6\text{cm}$, $b = 10\text{cm}$ and $h = 5\text{cm}$, calculate the area of a trapezium.

(b) The following figure shows the emblem. As the figure semi circular part has been removed from the rectangular metal sheet which is 20cm of length and 14cm of breadth and the removed part has been attached to the other side of a rectangle.

- (i) Find the value of h .
- (ii) Calculate the area of a semi circular part removed from the metal sheet (Area of a circle is πr^2)
- (iii) Find the area of a shaded region.



(2) (a) (i) Round off the following number to the nearest 10.

728.35

(ii) Simplify. $5 + \frac{2}{3}$ of 6

(b) A seller buys an electric appliance for Rs. 5000 and marks its selling price so that he earns a profit of 20%. When selling this article, if the payment is done outright, a discount of 5% is offered.

- (i) Find the marked price of an article.
- (ii) What is the discount given in rupees.
- (iii) Find the profit earned by selling an article.

(3) (i) Solve the inequality. $-3x < 12$ and find the minimum integral solution of x can take.

(ii) Factorize. $x^2 - 9x - 36$

(iii) Solve. $2a - 3b = -3$

$$a + 3b = 12$$

(iv) Simplify. $\frac{5}{5x + y} - \frac{2 - x}{5x + y}$

(4) (a) $\varepsilon = \{a, b, c, d, e, f, g, h, i, j\}$

$A = \{a, b, c, d, e, f\}$

$B = \{d, e, f, g, h\}$

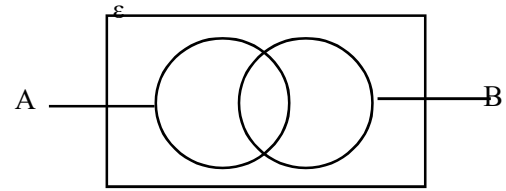
(i) Represent the above information in the given venn diagram.

(ii) Write each of the sets given below in terms of its elements.

i) A'

ii) $A \cup B$

(iii) Shade the region of $A \cap B$



(b) A tetrahedral die numbered from 1 to 4 and an unbiased coin is tossed at the same time and the one of the result out of all the possible outcomes which belongs to the sides of a coin and a tetrahedron touching the floor is given below.

$A = \{(H, 1), \dots\dots\dots\}$

(i) Fill the above sample space.

(ii) If A is the event of getting head of the coin with an odd number of the tetrahedron.

(a) Find $n(A)$

(b) Find $P(A)$

(5) The data given below are the quantity of litres of water taken away by the 25 consumers from the water purifying centre in one day.

32, 30, 25, 27, 31, 30, 29, 30, 25, 30, 29, 30, 32, 31, 27, 25, 29, 32, 34, 34, 27, 32, 31, 34, 29

(i) Using the above data fill the following table.

Quantity of water (in l)	Tally marks	Frequency f	fx
25			
27			
29			
30			
31			
32			
34			
Sum of the data values			

(ii) Find the range of the above data

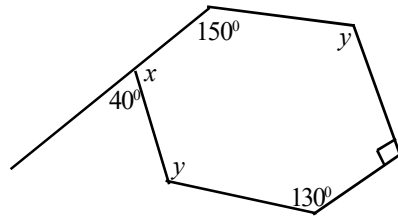
(iii) Find the mode

(iv) Find the median

(v) find the mean to the nearest whole number

- (6) A ship journeying from harbour A approaches harbour B after travelling 100km on a bearing of 050° . It then travels 130km on a bearing of 140° and approaches harbour C.
- Draw a rough sketch based on the above information.
 - If the scale diagram is drawn using the scale 1 cm representing 20 km, express the scale as a ratio.
 - According to the above scale, find the lengths of AB and BC for the scale diagram.
 - Draw a scale diagram.
 - Using the scale diagram, calculate the actual length from harbour A to harbour B.

- (7) (a) According to the given figure.



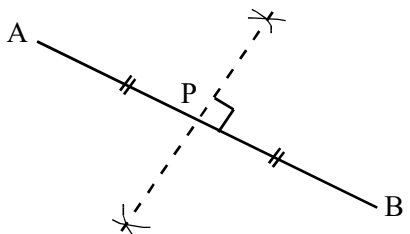
- Find the value of x .
- Find the sum of the interior angles of the above polygon.
- Construct the equation for sum of interior angles of the above polygon with y and find the value of y .
- The value of one exterior angle of a regular polygon is 45° .
 - Find the number of sides in the polygon.
 - Find the sum of interior angles of this polygon.


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Third Term Test - Grade 09 - 2019
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Mathematics - Answer Sheet

Part I

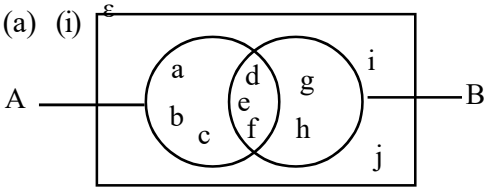
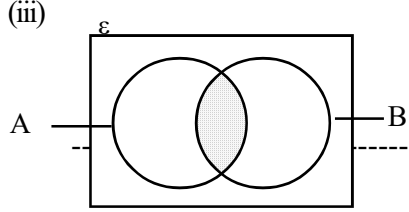
(1)	25, 21 -----	1+1	-2	(11)	n - 2 = 5 -----	1	n = 7 -----	1 -2
(2)	a ----- $\frac{2a}{2}$ -----		-2 1	(12)	ච. ඵ. = $\frac{1}{2} \times 12cm \times 10cm$ ----- = 60cm ² -----	1 1 -2		
(3)	A' = { 1, 2, 3, 8 } ----- අවයව හඳුනාගැනීම		-2 1	(13)	a + 10 ----- 4a + 5 - 3a + 5 -----	-2 1		
(4)	P + 6 = 14 ----- P = 8 -----		1 1 -2	(14)	(i) 6 ----- (ii) 22 - 28 -----	1 1 -2		
(5)	26500 ----- 2.65 × 10000 -----		-2 1	(15)	ii හා iii -----	1+1	-2	
(6)	x = 40 ----- $\frac{15}{x} = \frac{3}{8}$ හෝ 3x = 120 -----		-2 1	(16)	10 ----- 24 - 14 -----	-2 1		
(7)	$\frac{a^8}{2}$ ----- සුදුසු අතරමැදි සියවරකට		-2 1	(17)	26 -----	-2		
(8)	a = 90 + 40 a = 130 ----- b = 130° - 60° b = 70° -----		1 1 -2	(18)	25cm ----- AC ² = 24 + 7 ² -----	-2 1		
(9)	23050ml හා 23l 50ml -----	1+1	-2	(19)	9 වන පදය 13 + 4 = 17 -----		2 1	
(10)	A = (0, 4) -----	1+1	-2	(20)		1+1	-2	

Part II

(1) (a) (i)	සමාන්තරාස්‍රය	1	
(ii)	$AB = a + b$ -----	2	
(iii)	$A = (a + b)h$ ----- එනම් ත්‍රිකෝණයේ $\times 2 = (a + b)h$ \therefore ත්‍රිකෝණයේ ව. එ. = $\frac{1}{2}(a + b)h$ -----	1 2 3	
(iv)	$A = \frac{1}{2}(a + b)h$ $A = \frac{1}{2}(6 + 10)5$ ----- $A = 40\text{cm}^2$ -----	1 2 3	
(b) (i)	$h = 20 - 7$ ----- $h = 13\text{cm}$ -----	1 2	
(ii)	$\frac{1}{2} \times \frac{22}{7} \times 7 \times 7\text{cm}^2$ ----- 77cm^2 -----	1 2	
(iii)	Δ යේ ව. එ. = $\frac{1}{2} \times 14 \times 13$ ----- = 91cm^2 ----- මුළු ව. එ. = $11 + 91$ = 168cm^2 -----	1 1 1 3	
			16

(2) (a) (i)	730'00 -----	2	
(ii)	$5 + 6 \times \frac{2}{3}$ = $5 + 4$ ----- = 9 -----	1 2	
(b) (i)	රු. 6000 ----- $\frac{120}{100} \times 5000$ හෝ $\frac{20}{100} \times 5000$ -----	1	
(ii)	රු. 300 ----- = $\frac{5}{100} \times 6000$ -----	1	
(iii)	විකුණු මිල = $6000 - 300$ = රු. 5700 ----- ලාභය = $5700 - 5000$ = රු. 700 -----	1 2 3	
			11

(3) (i)	$x > -4$ -----	1	
	කුඩාම නිඛිලය -3 -----	1	2
(ii)	$x^2 - 12x + 3x - 36$ ----- $(x - 12)(x + 3)$ -----	1 1+1	3
(iii)	මුල් විචල්‍ය සෙවීම ----- දෙවන විචල්‍යය සෙවීම ----- ($a = 3, b = 3$) -----	2 1	3
(iv)	$\frac{5 - (2 - x)}{5x + y}$ ----- $\frac{5 - 2 + x}{5x + y}$ ----- $\frac{3 + x}{5x + y}$ -----	1 1 1	3
			11

(4) (a) (i)		3	
(ii)	(අ) $A' = \{g, h, i, j\}$ ----- (ආ) $A \cup B = \{a, b, c, d, e, f, g, h\}$ -----	1 1	2
(iii)		1	
(b) (i)	$S = \{(\text{සී}, 1) (\text{සී}, 2) (\text{සී}, 3) (\text{සී}, 4) (\text{ආ}, 1) (\text{ආ}, 2) (\text{ආ}, 3) (\text{ආ}, 4)\}$ -----	2	
(ii)	(අ) $n(A) = 2$ ----- (ආ) $P(A) = \frac{2}{8}$ හෝ $\frac{1}{4}$ -----	1 2	3
			11

(5) (i)

ජල ප්‍රමාණය (l) x	ප්‍රගණනය	සංඛ්‍යාතය f	fx
25	///	3	75
27	///	3	81
29	////	4	116
30	////	5	150
31	///	3	93
32	////	4	128
34	///	3	102
		$\Sigma f = 25$	$\Sigma fx = 745$

(ii) $34 - 25 = 9$ ----- 1

(iii) 30 ----- 1

(iv) 13 වන අය ගණන
30 ----- 1 - 2

(v) මධ්‍යන්‍යය = $\frac{\Sigma fx}{\Sigma f}$
 $= \frac{745}{25}$ ----- 1
 $= 29.8$ ----- 1
 $= 30 l$ ----- 1 - 3

11

(6) (i)

(ii) 1 : 2000000 ----- 2

(iii) AB = 5cm ----- 1
 BC = 6.5cm ----- 1 - 2

(iv)

(v) $8.2 \times 20km$
 164.0km ----- 2

11

(7) (a) (i) $180^\circ - 40^\circ = 140^\circ$ ----- 2

(ii) $180^\circ (6 - 2)$ ----- 1
 $180^\circ \times 4$
 720° ----- 1 - 2

(iii) $140 + 150 + y + 90 +$
 $130 + y = 720$ ----- 1
 $510 + 2y = 720$ ----- 1
 $2y = 210$
 $y = 105$ ----- 1 - 3

(b) (i) $= \frac{360}{45}$
 $= 8$ ----- 2

(ii) 135×8 හෝ $180 \times (8 - 2)$
 1080° 180×6 ----- 2
 1080°

11