PROVINCIAL DEPARTMENT OF EDUCATION – NORTH WESTERN PROVINCE

Second Term Test 2018
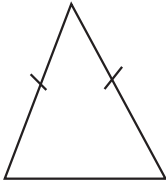# MATHEMATICS

Grade 8 **Time : 02 hours**
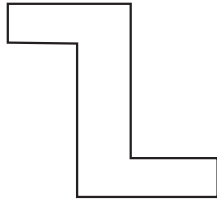
Name / Index No.

- **Answer 1st 20 questions on this paper itself.**
  Correct answer for each question carries two marks. (02 x 20 = 40)
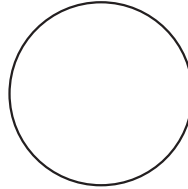
Part I

01. From the following underline the figures with bilateral symmetry.
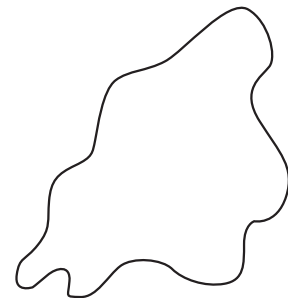
     (a)   (b)   (c)   (d)

02. Calculate, $\dfrac{3}{8} + \dfrac{5}{24}$

03. According to the given Venn diagram find **n(P)**.

    P ⟶ (a   b   d
             c   e)
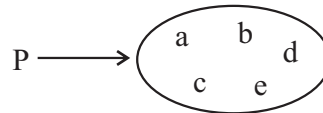
04. Write the reciprocal of, $\dfrac{5}{8}$

05. Calculate, **5.6 x 3.3**

06. Calculate,

	t	Kg
	3	750
+	5	922

07. Write the number of edges and vertices in a regular octahedron,

08. Calculate, $3\dfrac{1}{5} \times 5\dfrac{5}{8}$

01

09. If, **625 ÷ 25 = 25** find the value of **625 ÷ 0.25**

10. If, the ratio between A and B is $3:4$ and the ratio between B and C is $5:2$, find the ratio in A, B and C.

11. Find the value of, $\sqrt{324}$

12. Simplify, **(-5) - (-7)**

13. Find the value of x.
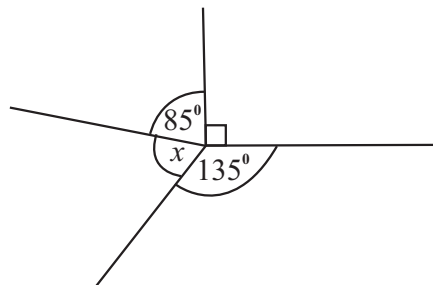
14. Find the value of, **15 x 2.8**

15. Express **(a x b)³** as a product of powers.

16. Factorize **15a + 18b**

17. Write **8a + 4ab - 4ac** as a product of two factors.

18. Find the value of, **(-1)⁵**

19. If P = {Quadrilaterals}, write 4 elements of P.

20. Amitha, Sunetha and Dilupa are friends. The ratio of their weights is $6:4:5$. If Sunetha's weight is 40kg. Find the weight of Dilupa.

- **Answer the first question and four other questions. (16 marks for the first question and 11 marks for each other questions.)**

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01. (a) (i)　Find the three interior angles of the above triangle and name them by given symbols.　　　(02 marks)

　　　(ii)　Write the three exterior angles of the above triangle.　　　(02 marks)

　　　(iii)　Draw a rough sketch, that we can make by pasting d, e, f angles as their vertices meet at a same point.　　　(02 marks)
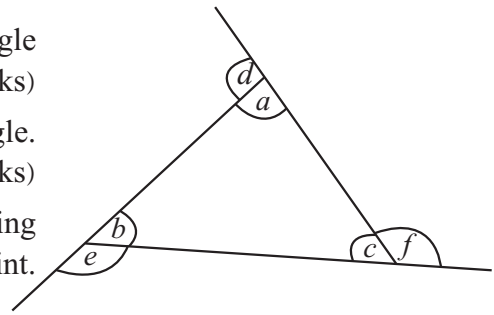
　　　(iv)　Write the suitable value in the blanks.

　　　　(a)　The sum of their interior angles of a triangle is .... and the sum of its exterior angles is, ...

　　　　(b)　The sum of the interior angles of a quadrilateral is .... and the sum of its exterior angles is ....　　　(04 marks)
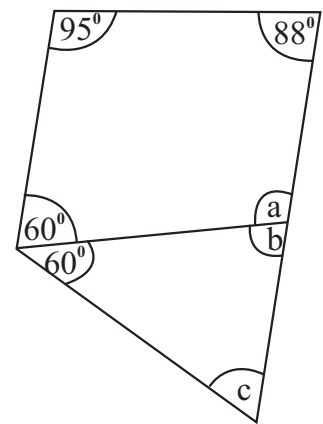
　(b)　Find the values of the following angles,

　　　a　=　　　　　　　b　=

　　　c　=　　　　　　　　　　　　(06 marks)

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02. (a) (i)　Write an equivalent fraction for, $\dfrac{2}{5}$　　　(01 mark)

　　　(ii)　Write $3\dfrac{3}{7}$ as an improper fraction.　　　(01 mark)

　(b)　Simplify,

　　　(i)　$\dfrac{3}{8}$ x $\dfrac{5}{12}$　　　(02m.)　(ii)　$3\dfrac{2}{7}$ x $\dfrac{14}{23}$　　　(02 marks)

　　　(iii)　$\dfrac{8}{11}$　$4\dfrac{4}{5}$　　　(02m.)　(iv)　$\left(\dfrac{2}{3} - \dfrac{1}{2}\right)$　$\dfrac{7}{12}$　　　(03 marks)

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03. (a)　Calculate,

　　　(i)　3.42 x 0.84　　　(02m.)　(ii)　825　1.5　　　(02 marks)

　(b) (i)　Fill the blank cage,

　　　☐ : 2　=　20 : 8　　　(02 marks)

　　　(ii)　Nimal and Kamal have an amount of money in the ratio 7 : 5. Represent the amount with Nimal as a fraction out of the total.　　　(02 marks)

　　　(iii)　A father divided Rs. 2000/= among his wife, daughter and son in the ratio of 5 : 2 : 3. Find the amount of money that the son received.　　　(03 marks)

04. (a) Solve following equations,

    (i) $\dfrac{x}{2} = 35$ (02 marks)   (ii) $3y + 2 = 11$ (02 marks)

    (iii) $4\left(\dfrac{y}{2} - 2\right) = 20$ (03 marks)

(b) Nimal has Rs. x. Sunil has Rs. 100 more than three times of the amount of Nimal.

    (i)   Write a suitable algebraic expression to represent the amount of money Sunil has. (01 mark)

    (ii)   If the amount of money Sunil has is Rs. 850, Calculate th amount of money that Nimal has.   (03 marks)

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05. (a) (i)   Calculate the area of the triangle A B C according to the given diagram.   (03 marks)

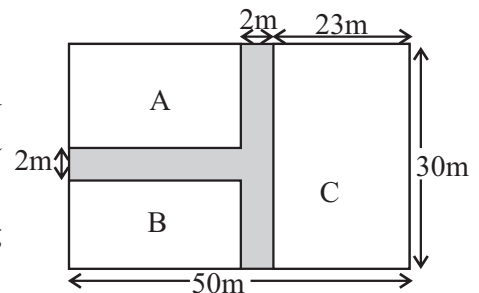   (ii)   Find the length denoted by x in the diagram.   (03 marks)
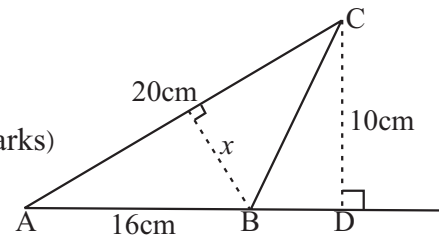
(b) The following diagram shows a sketch of a rectangular piece of land.

    (i)   Calculate the area of the land.   (02 marks)

    (ii)   Shaded areas in th diagram are the roads reserved for the lots **A, B** and **C**. Calculate the total area reserved for roads.   (02 marks)

    (iii)   Find the remaining area of the land, after reserving for roads.   (03 marks)

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06. (a) (i)   Write 32% as a fraction in the simplest form.   (02 marks)

    (ii)   Write the ratio 12 : 25 as a percentage.   (02 marks)

    (iii)   Out of the number of fruits in a bag, **20%** is Guava. If the total weight of this bag is **2kg** calculate the weight of Guava in it.   (03 marks)

(b) At the beginning, there were 200 workers in a sugar factory 40% of them were female. After 2 months, 15 female workers went abroad. Male workers were joined instead of them.

    (i)   What is the number of male workers at the beginning.   (02 marks)

    (ii)   Find the difference the number of male and female workers after two months.   (02 marks)

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07. (a) Copy of following table and fill the blanks.

Plane figure	Number of axes of bilateral symmetry	Order of rotational symmetry
Equilateral triangle	3	....
Parallelogram	....	2
Rhombus	....	....
Regular hexagon	5	....

                                                                    (05 marks)

(b) X = {the letters in the word ANURADHAPURA}

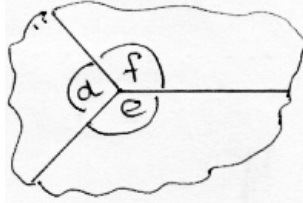   (i)   Write the elements of the set using set notation.   (02 marks)

    (ii)   If A is a null set, write a example for A.   (02 marks)

    (iii)   Write the set A using symbols.   (02 marks)

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Answer Sheet

Part I

01.	a and c 1 mark for each answer	01	02
02.	$\dfrac{3}{8} + \dfrac{5}{24}$ $\dfrac{9}{24} + \dfrac{5}{24}$ $= \dfrac{14}{24}$ $= \dfrac{7}{12}$	01 01	02
03.	$n(P) = 5$		02
04.	$\dfrac{8}{5}$		02
05.	5.6×3.3 $= 18.48$		02
06.	9t 672kg		02
07.	Edges = 12 Vertices = 6	01 01	02
08.	$3\dfrac{1}{5} \times 5\dfrac{5}{8}$ $\dfrac{16}{5} \times \dfrac{45}{8}$ $\dfrac{^2 \cancel{16}}{_1 \cancel{5}} \times \dfrac{\cancel{45}^{\,9}}{\cancel{8}^{\,1}}$ $= 18$	01 01	02
09.	2500		02
10.	15 : 20 : 8		02

11.	$\sqrt{324}$ = 2|324
	        2|162 2 x 3 x 3
	        3|81 = 18
	        3|27
	        3|9
	        3|3
	          1
	 Divide by prime numbers
	    2 x 3 x 3
	      = 18
		01
		
		 01
			02

12.	$(-5) - (-7)$ $-5 \oplus 7$ $= +2$	01 01	02
13.	$85^0 + 90^0 + 135^0 = 310^0$ $x = 360^0 - 310^0 = 50^0$	01 01	02
14.	42 or 42.0		02
15.	$a^3 \times b^3$		02
16.	$15a + 18b$ $= 3(5a + 6b)$	1+1	02
17.	$8a + 4ab - 4ac$ $= 4a(2 + b - c)$		02
18.	-1		02
19.	Square, parallelogram, trapezium rectangle, rhombus four from this 1 for two correct answers		02

20.	Amitha : Suneetha : Dilupa
	    6 : 4 : 5
	         $\downarrow$
	       $\dfrac{4}{15}$
	
	 $\dfrac{4}{15} = 40kg$
	
	 $\dfrac{40}{4} \times 5 = 50kg$
		01
		
		 01
			02

			40

Part II

01.	(a) (i)	a, b, c for 3 correct answers for 2 correct answers	02 01	02
	(ii)	d, e, f for 3 correct answers for 2 correct answers	02 01	02
	(iii)			02
	(iv) (a)	180^0 360^0	01 01	
	(b)	360^0 360^0	01 01	04
	(b)	a = 117^0 b = 63^0 c = 57^0	02 02 02	06
				16
02.	(a) (i)	$\dfrac{4}{10}$ or $\dfrac{6}{15}$ or $\dfrac{8}{20}$ for suitable answer		01
	(ii)	$\dfrac{24}{7}$		01
	(b) (i)	$\dfrac{3}{8} \times \dfrac{5}{12}$		

$= \dfrac{\cancel{2}^{1}}{8} \times \dfrac{5}{\cancel{12}\,_{4}}$	01	
$\dfrac{5}{32}$	01	02

(ii) $\quad 3\dfrac{2}{7} \times \dfrac{14}{23}$

$\dfrac{23}{7} \times \dfrac{14}{23}$ 01

$\dfrac{\cancel{23}^{1}}{\cancel{7}_{1}} \times \dfrac{\cancel{14}^{2}}{\cancel{23}_{1}}$

$= 2$ 01   02

(iii) $\quad \dfrac{8}{11} \quad 4\dfrac{4}{5}$

$= \dfrac{8}{11} \quad \dfrac{24}{5}$ 01

$= \dfrac{\cancel{8}^{1}}{11} \times \dfrac{5}{\cancel{24}_{3}}$

$= \dfrac{5}{33}$ 01   02

(iv) $\quad \left(\dfrac{2}{3} - \dfrac{1}{2}\right) \quad \dfrac{1}{12}$

$= \left(\dfrac{4}{6} - \dfrac{3}{6}\right) \quad \dfrac{7}{12}$

$= \dfrac{1}{6} \quad \dfrac{7}{12}$ 01

$= \dfrac{1}{6} \times \dfrac{12}{7}$ 01

$= \dfrac{2}{7}$ 01   03

11

03. (a) (i)

$\begin{array}{r} 3.4\,2 \\ \times\ 0.84 \\ \hline 2736\ \rceil \\ 1368\!\rfloor \\ \hline 2.8728 \\ \hline \end{array}$ 01 / 01   02

(ii) $\quad 825 \quad 1.5$

$\dfrac{8250}{15}$ 01

$= 550$ 01   02

(b) (i)   5   02

(ii) Nimal : Kamal

     7 : 5

For Nimal $\quad \dfrac{7}{12}$ 02

(iii) Wife : Daughter : Son

    5 :   2   : 3   01

       $\downarrow$

      $\dfrac{3}{10}$

$2000 \times \dfrac{3}{10}$ 01

$= $ Rs. 600.00   01   03

11

04. (a) (i) $\quad \dfrac{x}{2} = 35$

$x = 2 \times 35$ 01

$x = 70$ 01   02

(ii) $\quad 3y + 2 = 11$

$\quad 3y = 11 - 2$

$\quad 3y = 9$ 01

$\quad y = \dfrac{9}{3}$

$\quad y = 3$ 01   02

(iii) $\quad 4\left(\dfrac{y}{2} - 2\right) = 20$

$\quad \dfrac{y}{2} - 2 = \dfrac{20}{4}$ 01

$\quad \dfrac{y}{2} = 5 + 2$

$\quad \dfrac{y}{2} = 7$ 01

$\quad y = 7 \times 2$

$\quad y = 14$ 01   03

(b) (i) $\quad 3x + 100$ 01

(ii) $\quad 3x + 100 = 850$ 01

$\quad 3x = 850 - 100$

$\quad 3x = 750$ 01

$\quad x = \dfrac{750}{3}$

$\quad x = 250$

Amount of money with

   Sunil $=$ Rs. 250   01   03

11

05. (a) (i) $\quad \dfrac{1}{2} \times$ base $\times$ perpendicular   01

                 height

$= \dfrac{1}{2} \times 16 \times 10$ 01

$= \dfrac{1}{\cancel{2}} \times 16 \times \cancel{10}^{5}$

$= 80 \text{cm}^2$ 01   03

(ii) $\quad \dfrac{1}{2} \times 20 \times x = 80$ 01

		$\frac{1}{\cancel{2}_1} \times \cancel{20}^{10} \times x = 80$	01		07.	(a)	(i)	3 3 0 2 2 2 5 5	01 01 02 01	05

$$10x = 80$$
$$x = \frac{80}{10}$$
$$x = 8 \text{ cm} \qquad 01 \qquad 03$$

(b) (i) 50m x 30m   01
    = 1500m²   01   02

   (ii) (30 x 2)m² + (25 x 2)m²
    = 60m² + 50m²   01
    = 110m²   01   02

   (iii) 1500m² - 110m²
    = 1390m²   **01**
        11

(b) (i) X = {A, N, U , R, D, H, P}   02
    All elements are connect
    At least 5 elements correct   01   02

   (ii) A = {Animals with fethers}
    A = {multiples of 6 between
      1 and 5}
    or any suitable answer   02

   (iii) A =   or A = { }   02
        11

06. (a) (i) $\frac{32}{100}$ 01

     $= \frac{8}{25}$ 01   02

   (ii) 12 : 25
    12 x 4 : 25 x 4
     48 : 100   01
      48%   01   02

   (iii) $2\text{kg} \times \frac{20}{100}$ 01

    $2000\text{g} \times \frac{20}{100}$

    $20\cancel{00} \times \frac{20}{1\cancel{00}}$ 01

    = 400g   01   03

(b) (i) Male employee percentage   01
        = 100 - 40
        = 60%

    $200 \times \frac{60}{100}$

    = 120   01   02

   (ii) Female employees after
    2 months   = 80 - 15
           = 65

    Male employees after
    2 months   = 120 + 15
           = 135

    Difference = 135 - 65   01
            = 70   01   02
              11