

MT

## FIRST TERM SUMMATIVE EXAMINATION - 2022

7 - Std

## MATHS

Time : 2.00 Hrs

Marks : 60

## PART - A

## I Choose the correct answer.

1.  $(-8) + 10 + (-2) =$   $10 \times 1 = 10$   
a) 2                                      b) 8                                      c) 0                                      d) 20
2. Which of the following expression is equal to -30  
a)  $-20 - (-50 \times 2)$   
b)  $(6 \times 10) - (6 \times 5)$       c)  $(2 \times 5) + (4 \times 5)$       d)  $(-6) \times (+5)$
3. The area of a parallelogram whose base 10m and height 7m is  
a) 70 sq.m      b) 35 sq.m      c) 7 sq.m      d) 10 sq.m
4. The height of the rhombus whose area 90 sq. m and side 25m is  
a) 8 m              b) 10 m              c) 2 m              d) 4 m
5. The numerical coefficient of  $-7mn$  is      a) 7      b) -7      c) p      d) -p
6. When we subtract 'a' from 'a' we get .....  
a) 0              b) 2a              c) -2a              d) -a
7. The equation  $y + 1 = 0$  is true only when y is  
a) 0              b) -1              c) 1              d) -2
8. 35 cycles were produced in 5 days by a company then ..... cycles will be produced in 21 days  
a) 150              b) 70              c) 100              d) 147
9. The sum of all angles at a point is  
a)  $360^\circ$               b)  $180^\circ$               c)  $90^\circ$               d)  $0^\circ$
10.  $(-100) - 0 + 100 =$  .....      a) 200      b) 0      c) 100      d) -200

## II Fill in the blanks.

 $10 \times 1 = 10$ 

11.  $-70 + 20 = \square - 10$ .
12. The variables in the expression  $16x - 7$  is .....
13. The additive inverse of  $(-32)$  is .....
14. If  $a = 5$  the value of  $2a + 5$  is .....
15. If the cost of 8 apples is Rs. 56 then the cost of 12 apples is .....
16. Sum of  $a - b + c$  and  $-a + b + c$  is .....
17. The sum of all the angles formed at a point on a straight line is .....
18.  $-44 + \dots = -88$
19. In the expressions  $25m + 14n$ , the types of the terms are ..... terms.
20. If 40 workers can do a project work in 8 days, then ..... workers can do it in 4 days.

## PART - B

## Answer any 10 questions.

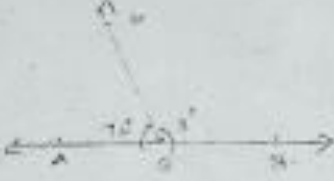
21. Add 8 and -12 using number line.  $10 \times 2 = 20$
22. Find the product of  $-15 \times 13 \times (-7)$ .

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23. Find the area of the parallelogram whose base is 16cm and length is 6cm.  
 24. Geetha has Rs. 150 she wanted to buy a bag which cost 275. How much money does she need to borrow from her friend?  
 25. Find the area of a trapezium whose parallel sides are 24cm and 20cm and the distance between them is 15cm.  
 26. Subtract :  $11x + 8y - 3$  from  $29x + 4y - 40$ .  
 27. Identify th terms among the following.  $7x$  ,  $5y$ ,  $-6x$ ,  $9y$ ,  $4z$ ,  $2z$ ,  $-9x$ ,  $-7y$ ,  $10z$   
 28. If 7 children shared 28 pencils equally then how many pencils we required for 20 children?  
 29. Solve :  $12x + 10 = 70$   
 30. A farm has enough food for 144 hens for 28 days. If the sells 32 hens how many will be food last?

31. Find the measure of angle.



32.  Given that AB is a straight line. Calculate the value of  $x^\circ$

33. The area of a rhombus is 100sq.cm and length of one of its diagonals is 8 cm find the length of the other diagonal.

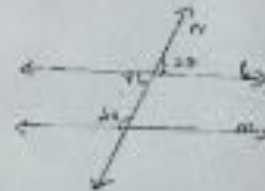
#### PART - C

Answer any 5 questions.

$5 \times 3 = 15$

34. Show that  $[(-6) \times 4] \times (-3) = (-6) \times [4 \times (-3)]$ .  
 35. A ground is in a the shape of parallelogram. The height of the parallelogram is 20 metres and the corresponding base is 6 metres longest than its height. Find the cost of levelling the ground at the rate of Rs. per square.  
 36. Simplify :  $(3x + 2y - z) + (6x - 5y + 7z) - (14x + 7y - 6z)$ .  
 37. If  $x = 2$ ,  $y = 3$  then find the value of the expression.  
 (i)  $(3x + 4y)$  (ii)  $-y + 5x$   
 38. Sheela bought 4 notebooks for Rs. 32. How much money will be needed to buy 10 such notebooks?

39. If  $l$  is parallel to  $m$ . Find the measure of  $x$  and  $y$ .



40. A postman can sort out 838 letters in 6 hours. How many letters can be sorted in 9 hours?

#### PART - D

IV Answer any one from the following.

$1 \times 5 = 5$

41. Construct a perpendicular bisector of the line segment  $AB = 9\text{cm}$ .  
 42. Construct the angle  $90^\circ$  using ruler and compass only.

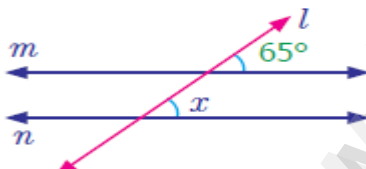
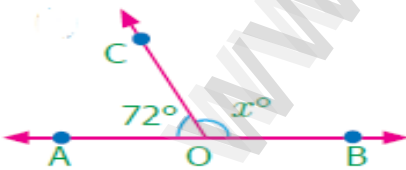


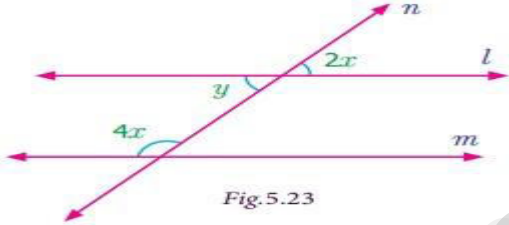
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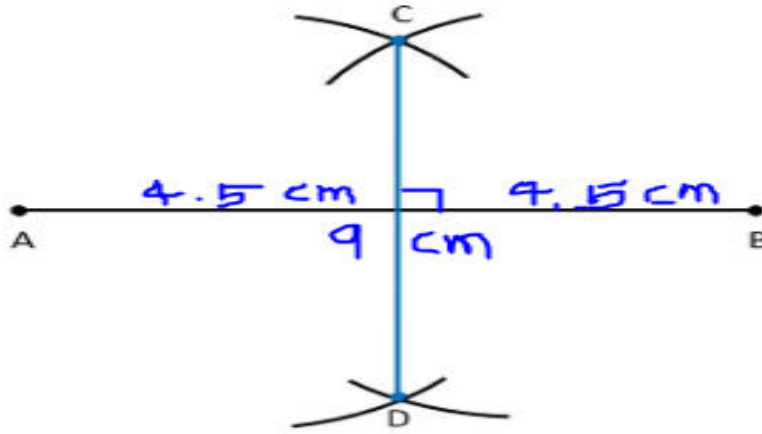
### ANSWER KEY

Q.No	ANSWER	MARK
1	c)0	1
2	d) (-6) x (+5)	1
3	a) 70 sq.m	1
4	All options [The correct answer is 3.6 m , but these are not given in the options to be selected(90 sq.m/25 m is 3.6 m)]	1
5	b) -7	1
6	a) 0	1
7	b) -1	1
8	d) 147	1
9	a) 360°	1
10	b) 0	1
11	-40	1
12	x	1
13	32	1
14	15	1
15	₹ 84	1
16	2c	1
17	180°	1
18	-44	1
19	Unlike	1
20	80	1
21		2
22	$(-15) \times 13 \times (-7) = [(-15) \times (-7)] \times 13$ $= [(105)] \times 13$ $= 1365$	2
23	Base of a parallelogram ( $b$ ) = 16 cm, Height of a parallelogram ( $h$ ) = 6 cm(Assume length is height) Area of a parallelogram = $b \times h$ sq.units. Therefore, Area = $16 \times 6$ $= 96$ sq. cm. Thus, area of the parallelogram is 96 sq. cm.	2
24	Amount with Geetha = ₹ 150 Cost of bag = ₹ 275 Amount to be borrowed = $275 - 150$ $= ₹ 125$	2
25	Parallel sides $a = 24$ cm, $b = 20$ cm Height $h = 15$ cm Area of the trapezium = $\frac{1}{2} h (a + b)$ sq.units Area of the trapezium = $\frac{1}{2} \times 15 (24 + 20)$ sq. units $= \frac{1}{2} \times 15 \times 44$ sq.cm $= 330$ sq.cm Area of the trapezium = 330 sq.cm	2

26	$(29x + 4y - 40) - (11x + 8y - 3) = (18x - 4y - 37)$	2						
27	Like terms : $x$ terms : $7x, -8x, -12x$ $y$ terms : $5y, 12y, -9y$ $z$ terms : $6z, z, 11z$ $\frac{x - \text{terms}}{7x, -8x, -12x} \quad \frac{y - \text{terms}}{5y, 12y, -9y} \quad \frac{z - \text{terms}}{6z, z, 11z}$	2						
28	Let $x$ be the number of pencils required for 20 children. As the number of children increases, number of pencils also increases. <table border="1"> <tr> <td>Number of children</td> <td>7</td> <td>20</td> </tr> <tr> <td>Number of pencils</td> <td>28</td> <td><math>x</math></td> </tr> </table> <p>In the case of direct proportion we take <math>\frac{x_1}{y_1} = \frac{x_2}{y_2}</math></p> $\Rightarrow \frac{7}{28} = \frac{20}{x}$ $\Rightarrow x = \frac{20 \times 28}{7}$ $\Rightarrow x = 20 \times 4$ $\Rightarrow x = 80$ <p>Hence, 80 pencils are required for 80 children.</p>	Number of children	7	20	Number of pencils	28	$x$	2
Number of children	7	20						
Number of pencils	28	$x$						
29	$12x + 10 = 70$ $\Rightarrow 12x = 70 - 10$ $\Rightarrow 12x = 60$ $\Rightarrow x = 60/12$ $\Rightarrow x = 5$	2						
30	Let $x$ be the required number of days. <table border="1"> <tr> <td>Number of hens</td> <td>144</td> <td>112</td> </tr> <tr> <td>Number of days</td> <td>28</td> <td><math>x</math></td> </tr> </table> <p>When number of hens decrease food last for days will be increased So, it is in inverse proportion.  Hence <math>x_1 y_1 = x_2 y_2</math>  <math>144 \times 28 = 112 \times x</math>  <math>x = (144 \times 28) / 112 = 36</math> days  The food will last for 36 days.</p>	Number of hens	144	112	Number of days	28	$x$	2
Number of hens	144	112						
Number of days	28	$x$						
31	 $x = 65^\circ$ (corresponding angles)	2						
32	 $\angle AOC + \angle BOC = 180^\circ$ $72^\circ + x^\circ = 180^\circ$ $x^\circ = 180^\circ - 72^\circ = 108^\circ$	2						
33	The area of the rhombus = 100 sq.cm The length of one diagonal $d_1 = 8$ cm The length of other diagonal = $d_2$ Area of the rhombus = $1/2 \times d_1 \times d_2 = 100$ $= 1/2 \times 8 \times d_2 = 100$ $d_2 = 100/4 = 25$ cm The length of the other diagonal = 25 cm	2						

34	$[(-6) \times 4] \times (-3) = [-24] \times (-3) = +72$ $(-6) \times [4 \times (-3)] = (-6) \times [-12] = +72$ $[(-6) \times 4] \times (-3) = (-6) \times [4 \times (-3)]$ <p>Hence it is proved</p>	3						
35	<p>Height of the parallelogram <math>h = 14 \text{ m}</math>  base <math>b = 8 \text{ m}</math> longer than its height <math>= (8 + 14) \text{ m} = 22 \text{ m}</math>  Area of the parallelogram <math>= b \times h \text{ sq. units}</math>  <math>= 22 \times 14 \text{ sq. m}</math>  <math>= 308 \text{ sq. m}</math>  Cost of levelling 1 sq.m <math>= ₹ 15</math>  Cost of levelling 308 sq.m <math>= ₹ 308 \times 15</math>  <math>= ₹ 4620</math>  Cost of levelling the ground <math>= ₹ 4620</math></p>	3						
36	$(3x + 2y - z) + (6x - 5y + 7z) - (7x - 7y - 6z) = (3+6-7)x + (2-5+7)y + (-1+7+6)z$ $= (9-7)x + (9-5)y + (-1+13)z$ $= 2x + 4y + 12z$	3						
37	$x = 2, y = 3$ i) $2x - 3y = 2(2) - 3(3) = 4 - 9 = -5$ ii) $x + y = 2 + 3 = 5$ iii) $4y - x = 4(3) - 2 = 12 - 2 = 10$ iv) $x + 1 - y = 2 + 1 - 3 = 3 - 3 = 0$	3						
38	<p>Using unitary method we can solve this as follows:  The cost of 4 notebooks <math>= ₹ 32</math>  The cost of 1 notebook <math>= 32/4 = ₹ 8</math>  Therefore, the cost of 10 notebooks <math>= 10 \times ₹ 8 = ₹ 80</math>  Hence, Sheela has to pay ₹ 80 for 10 notebooks.</p>	3						
39	<p>Given <math>l</math> is parallel to <math>m</math> and <math>n</math> is transversal to <math>l</math> and <math>m</math>.</p>  <p style="text-align: center;">Fig. 5.23</p> <p>We get, <math>y = 2x</math> [Vertically opposite angles are equal]  <math>y + 4x = 180^\circ</math> [sum of interior angles that lie on the same side of the transversal]  <math>2x + 4x = 180^\circ</math> [since <math>y = 2x</math>]  <math>6x = 180^\circ</math>  Dividing by 6 on both sides  <math>x/6 = 180^\circ/6</math> gives, <math>x = 30^\circ</math>.  Now, <math>y = 2(30^\circ) = 60^\circ</math>.</p>	3						
40	<p>Let <math>x</math> be the number of letters sorted in 9 hours.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>Number of letters sorted</td> <td>838</td> <td><math>x</math></td> </tr> <tr> <td>Time (hrs)</td> <td>6</td> <td>9</td> </tr> </tbody> </table> <p>As the time increases the number of letters sorted also increases  So, it is in direct proportion  Hence, <math>x_1 / y_1 = x_2 / y_2</math>  <math>838 / 6 = x / 9</math>  <math>x = [838 \times 9] / 6</math>  <math>= 7542/6</math>  <math>x = 1257</math>  1257 letters can be sorted in 9 hours.</p>	Number of letters sorted	838	$x$	Time (hrs)	6	9	3
Number of letters sorted	838	$x$						
Time (hrs)	6	9						

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Step 1 : Draw a line. Mark two points A and B on it so that  $AB = 9$  cm

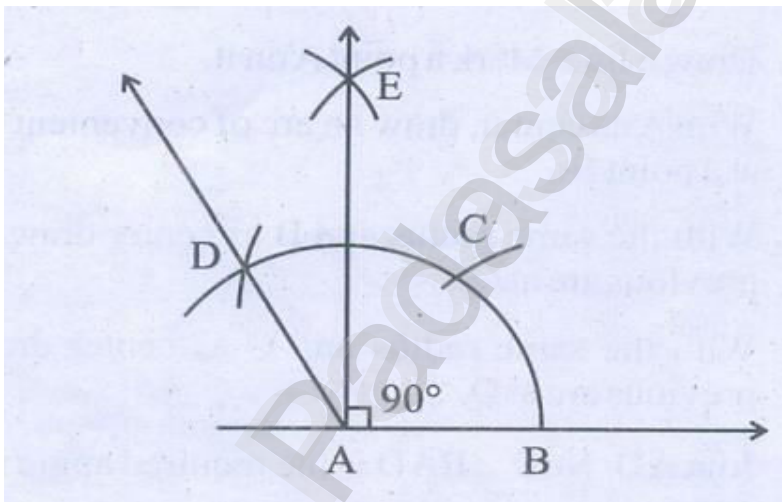
Step 2 : Using compass, A as center and radius more than half of the length of AB draw two arcs one above AB and one below AB.

Step 3 : With the same radius and B as center draw two arcs above and below AB. They cut the previous arcs at C and D.

Step 4 : Join C and D. CD intersects AB. Mark the point of intersection as O. CD is the required perpendicular bisector of AB.

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Step 1 : Draw a line. Mark a point A on it.

Step 2 : With A as center, draw an arc of convenient radius to the line at a point B.

Step 3 : With the same radius and B as center draw an arc to cut the previous arc at C.

Step 4 : With the same radius and C as center draw an arc to cut the previous arc at D.

Step 5 : Join AD.  $\angle BAD = 120^\circ$

Step 6 : With C as center, draw an arc of convenient radius in the interior of  $\angle CAD$

Step 7 : With the same radius and D as center draw an arc to cut the previous arc at E.

Step 8 : Join AE. Now  $\angle BAE = 90^\circ$  is the required angle.

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