Subject Code: 1 0 9

Model Question of JSC Exam 2016

Subject: Mathematics

Time: 3 Hours **Full Marks: 100**

Group - A (Arithmetic)

1. Mr. Sam deposited some money in a bank and got the profit of tk. 4760 after 4 years. The percentage of profit of the bank is tk. 8.50 per annum.
   (a) Express tk. 8.50 in percentage.
   (b) What is the amount of money did he deposit in the bank?
   (c) Find out the compound profit of his deposited money.

Solution:

(a) 8.5 %

$$= \frac{\cancel{85}^{17}}{100 \times \cancel{10}^{2}}\%$$

$$= \frac{17}{200} = 0.085\% \text{ (Ans)}$$

(b) Given,

Profit, I = 4760 tk

n = 4 years

rate of profit, r = 8.5%

= 0.085

Let, capital = P

We know, $P = \frac{I}{nr}$

$$P = \frac{4769}{4 \times 0.085} = 14{,}000\text{Tk.}$$

Ans. 14,000Tk.

(c) We know,

Compound profit = Profit-principal – principal

$= p(1 + r)^n - p$

$$= 14000\left(1 + \frac{8.5}{100}\right)^4 - 14000$$

$$= 14000 \times \left(\frac{8.5}{100}\right)^4 - 14000$$

$= 14000\ \{1.385 - 1\}$

$= (14000 \times 0.385)$

$= 5402.02$ (Ans.)

2. The breadth of a rectangular pond is $\frac{3}{5}$ times its length and area of the pond is 960 square metres.
   (a) Find the length of the pond.
   (b) If the width of the bank outside of the pond be 3 metres, then find the area of the bank.
   (c) If the depth of the pond is 3.8 metres, then find the weight of the water contained in the pond in metric ton

Solution:

(a) Let, Length = x m

$\therefore$ Breadth = $\frac{3x}{5}$ m

$\therefore$ Area = $\frac{3x^2}{5}$ sq. m

According to question,

$\frac{3x^2}{5} = 960$

$\Rightarrow 3x^2 = 960 \times 5$

$\Rightarrow 3x^2 = 4800$

$\Rightarrow x^2 = \frac{4800}{3}$

$\Rightarrow x^2 = 1600$

$\Rightarrow x = \sqrt{1600}$

$\Rightarrow x = 40$

Therefore length of the pond is 40 metres. (Ans.)

(b) Length = 40 m [froml (a)]

$\therefore$ Breadth = $\frac{40 \times 3}{5}$ m = 24 m

Length of pond with bank = $\{40 + (3 \times 2)\}$ m
= (40 + 6)m
= 46m

Breadth of pond with bank = 24 + (3 × 2) m
= 24 + 6 m
= 30 m

$\therefore$ Area with bank = (46 × 30) sq. m.
= 1380 sq. m.

$\therefore$ Area of the bank = (1380 – 960) sq. m.
= 420 sq. m. (Ans.)

(c) Given that,
Length of the pond = 40m.
Breadth of the pond = 24m
Depth of the pond = 3.8m
∴ Volume of the pond
$= (40 \times 24 \times 3.8)$ cubic metres
= 3668 cubic metres
We know, = 3648000000 cubic cm
1000 cubic cm = 1 litre
∴ 3648000000 " $= (364000000 \div 1000)$ litre
= 3648000 litre
We unow,
1000 L of water = 1 metric ton
∴ 364800 L " " $= \frac{364800}{1000}$ metric ton
= 3648 metnic ton
Ans : 3648 metricton

Group - B (Algebra)

3. Any general rule or corollary expressed by algebraic symbols is known as algebraic formula.

Given, $a + \frac{1}{a} = 7$

(a) Find value of $a^2 + \frac{1}{a^2}$.

(b) prove that $a^3 + \frac{1}{a^3} = 322$

(c) Find the value of $8\left(a^2 + \frac{1}{a^2}\right)\left(a^4 + \frac{1}{a^4}\right)$.

Solution:

(a) Given, $a + \frac{1}{a} = 7$

$$\therefore a^2 + \frac{1}{a^2} = \left(a + \frac{1}{a}\right)^2 - 2a.\frac{1}{a}$$
$$= (7)^2 - 2; \text{ [putting the value]}$$
$$= 49 - 2 = 47 \text{ (Ans.)}$$

(b) $L.H.S = a^3 + \frac{1}{a^3}$

$$= \left(a + \frac{1}{a}\right)^3 - 3.a.\frac{1}{a}\left(a + \frac{1}{a}\right)$$

$= (7)^3 - (3 \times 7)$

$= 343 - 21$

$= 322 = \text{R.H.S}$ [Proved]

(c) $8\left(a^2 + \frac{1}{a^2}\right).\left(a^4 + \frac{1}{a^4}\right)$

$= 8\left\{\left(a + \frac{1}{a}\right)^2 - 2.a.\frac{1}{a}\right\}.\left\{(a^2)^2 + \left(\frac{1}{a^2}\right)^2\right\}$

$= 8\{(7)^2 - 2\}.\left\{\left(a^2 + \frac{1}{a^2}\right)^2 - 2.a^2.\frac{1}{a^2}\right\}$

$= 8.(49 - 2)\left[\left\{\left(a + \frac{1}{a}\right)^2 - 2.a.\frac{1}{a}\right\}^2 - 2\right]$

$= (8 \times 47) \times [\{(7)^2 - 2\}^2 - 2]$

$= 376 \times \{(49 - 2)^2 - 2\}$

$= 376 \times \{(47)^2 - 2\}$

$= 376 \times (2209 - 2)$

$= 376 \times 2207 = 829832$ (Ans.)

4. 10 years ago the ratio of ages of father and son was 4:1 and after 10 years that will be 2:1.

(a) If x years and y years be present ages of father and son respectively, find two relations between their ages.

(b) Find the present ages of father and son by the method of substitution.

(c) solve the equations obtained from a using graphical method.

Solution:

(a) Let, father's present age x years

Son's " " y "

10 years ago,

Father's age was $(x - 10)$ years

$\therefore$ Son's age was $(y - 10)$ years.

After 10 years.

Father's age will be $(x + 10)$ years

Son's age will be $(y + 10)$ years

According to the 1st condition,

$(x - 10) : (y - 10) = 4 : 1$

or, $\frac{x-10}{y-10}=\frac{4}{1}$

or, $x-10=4y-40$

or, $x-4y=-40+10$

or, $x-4y=-30$ ..... (i)

According to the 2nd condition,

$(x+10):(y+10)=2:1$

or, $\frac{x+10}{y+10}=\frac{2}{1}$

or, $x+10=2y+20$

or, $x-2y=20-10$

or, $x-2y=10$ ..... (ii)

(b) from equation (ii) we get,

$x=10+2y$ ..... (iii)

Putting the value of x on equation (i) we get,

$10+2y-4y=-30$

$\Rightarrow -2y=-30-10$

$\Rightarrow 2y=40$

$\Rightarrow y=20$

$\therefore$ Putting the value of y on equation (iii)

We get,

$x=10+(2\times 20)$

$=10+40$

$=50$

$\therefore$ Age of father = 50 years

$\therefore$ Age of son = 20 years

(c) $x-4y=-30$ — (i)

$x-2y=10$ — (ii)

from equation (i) we get,

$x-4y=-30$

$\Rightarrow -4y=-30-x$

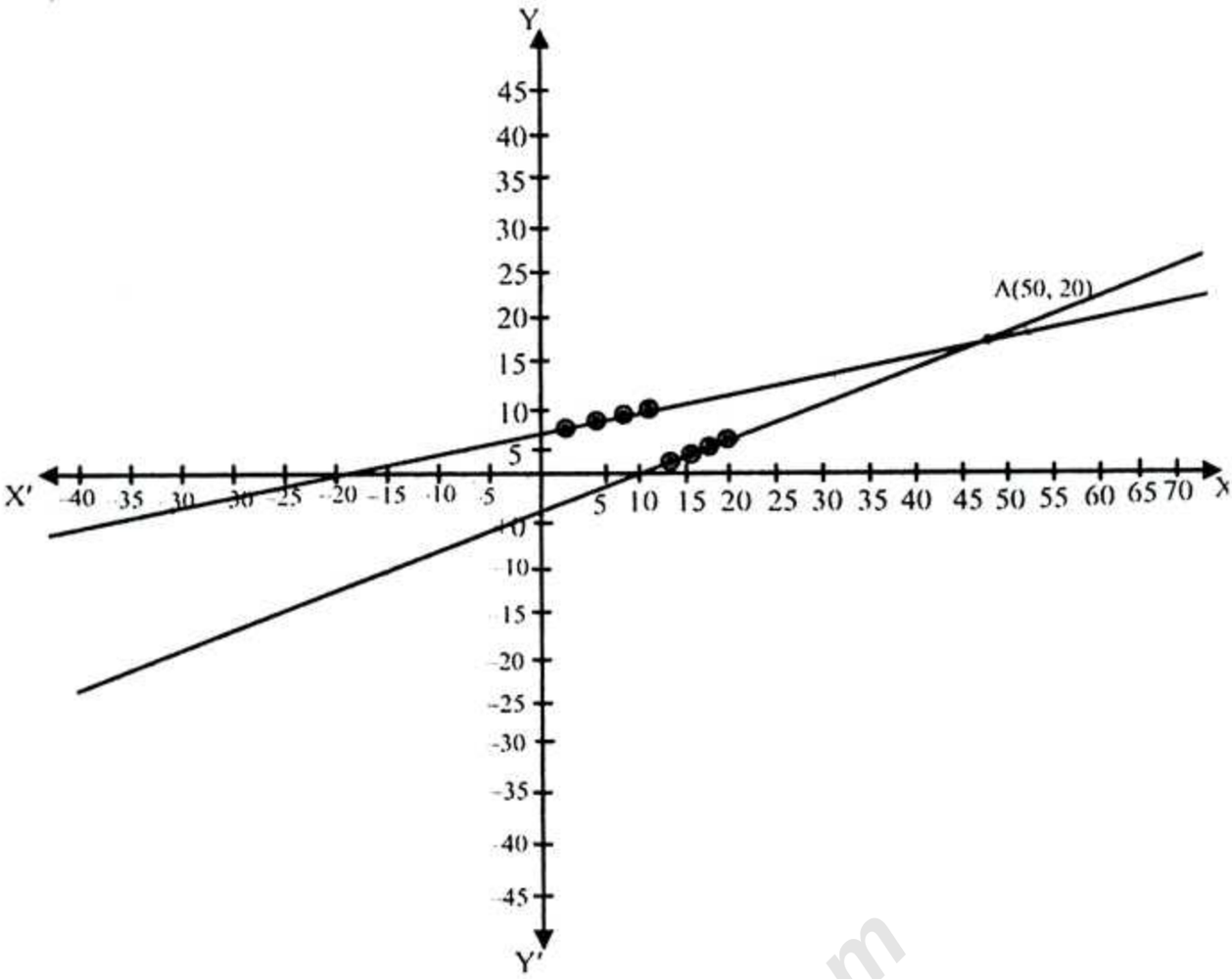
$\Rightarrow 4y=30+x$

$\Rightarrow y=\frac{30+x}{4}$

for various value of x we get,

x	1	2	3	4
y	$\frac{31}{4}$	8	$\frac{33}{4}$	$\frac{17}{2}$

from equation (ii) we get, $y=\frac{x-10}{2}$



for various value of x we get,

x	11	12	13	14
y	$\frac{1}{2}$	1	$\frac{3}{2}$	2

Let, XOX′ and YOY′ is x axis and y axis and O is the origin.

Let, the length of a side of smallest square of both axes be chosen as a unit. We put the points $\left(1, \frac{31}{4}\right)$, (2, 8), $\left(3, \frac{33}{4}\right)$, $\left(4, \frac{17}{2}\right)$ on the graph paper. Adding the points and extending the line is both direction, we get the graph of the equation (i).

Again, we put the points $\left(11, \frac{1}{2}\right)$, (12, 1), $\left(13, \frac{3}{2}\right)$, (14, 2) on the graph paper.

joining the points we get the graph of straight line which represents the straight line (ii)

This straight line intersects the previous one at the point A. A is the common point of both straight lines. Both the equations are satisfied by coordinates of A. From the graph we see that the

abscissa of A is 50 and the ordinate is 20. Therefore, the required solution is (x, y) = (50, 20)

$\therefore$ Required value (x, y) = (50, 20)

5. A and B are the sets of all factors of 87 and 108 respectively.

(a) Express set A and set B in tabular form.

(b) Find $A \cup B$ and $A \cap B$ when the elements of the sets are greater than 3.

(c) Find all subsets of $A \cap B$ and find the complement of this set.

Solution:

(a) Given,

$A = \{x: x \text{ is factor of } 84\}$

$\therefore 87 = 87 \times 1$

$= 3 \times 29 \times 1$

$\therefore A = \{3, 29, 1\}$

$B = \{x: x \text{ is factor of } 108\}$

$\therefore 108 = 1 \times 108$

$= 1 \times 2 \times 54$

$= 1 \times 2 \times 2 \times 27$

$= 1 \times 2 \times 2 \times 3 \times 9$

$= 1 \times 2 \times 2 \times 3 \times 3 \times 3$

$\therefore B = \{1, 2, 3\}$

(b) Here, elements of sets are greater than 3.

$\therefore A = \{29\}$

$\therefore B = \{\ \}$

$\therefore A \cup B = \{29\} \cup \{\ \}$

$= \{29\}$

$\therefore A \cap B = \{29\} \cap \{\ \}$

$= \varnothing$

(c) Here, $A = \{1, 3, 29\}$

$B = \{1, 2, 3\}$

$\therefore A \cap B = \{1, 3, 29\} \cap \{1, 2, 3\} = \{1, 3\}$

$\therefore$ subsets of $A \cap B = \{1\}, \{3\}, \{1,3\}\ \varnothing$

as there are only two sets $A = \{1, 2, 29\}$ and $B = \{1, 2, 3\}$

Hence, the universal set U will be $A \cup B$

New, $U = A \cap B = \{1, 23, 29\} \cup \{1, 2, 3\} = \{1, 2, 3, 29\}$

$\therefore (A \cap B)' = U - A \cap B$

$= \{1, 2, 3, 29\} - \{1, 3\}$

$= \{2, 29\}$.

Ans. $\{1\}, (3\}, \{1, 3\}, \varnothing$; $\{2, 29\}$.

Group - C (Geometry)

6. ABC is a triangle with $\angle ACB = 1$ right angle.

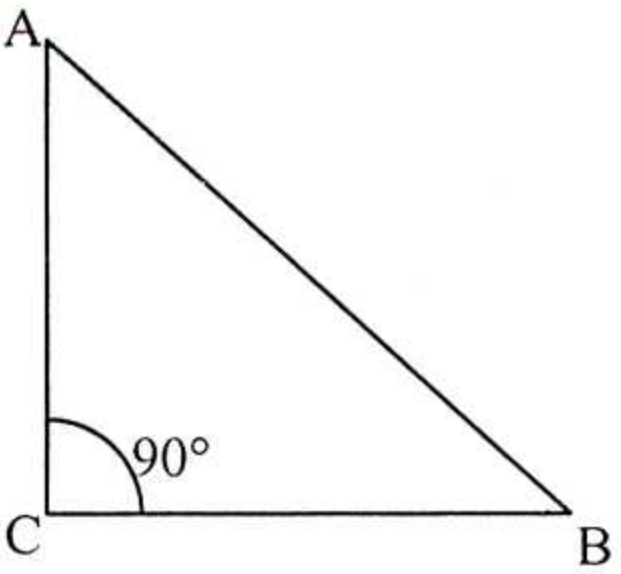
(a) Draw a triangle with the help of above information.

(b) If $\angle A = 1$ right angle CD is median, then prove that $BC^2 = CD^2 + 3AD^2$

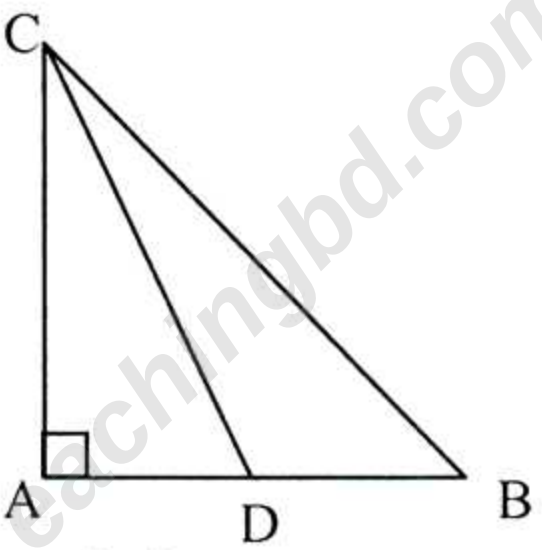
(c) Prove that, $AB^2 = BC^2 + AC^2$

Solution:

(a)



(b) In ΔABC, $\angle A$ is right angle and CD is a median. Prove that, $BC^2 = CD^2 + 3AD^2$.



Particular enunciation:

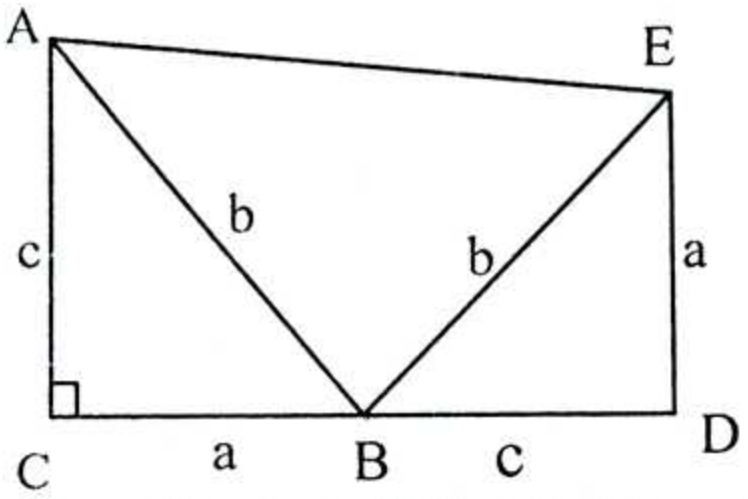
Suppose, in triangle ABC, $\angle A = 1$ right angle and CD is a median.

We have to prove that, $BC^2 = CD^2 + 3AD^2$

Proof:

Step	Justification
1. In right angled triangle ACD, $CD^2 = AC^2 + AD^2$ or, $AC^2 = CD^2 - AD^2$	[According to Pythagoras' theorem]
2. Again, in right angled triangle ABC, $BC^2 = AB^2 + AC^2$ $= (2AD)^2 + AC^2$ [$\because$ AB = 2AD] $= 4AD^2 + AC^2$ $= 4AD^2 + CD^2 - AD^2$ $\therefore BC^2 = CD^2 + 3AD^2$ [Proved]	[By Pythagoras theorem] [From 1]

(c) Proposition: let in ΔABC, $\angle C = 90°$, hyopotenuse AB = b, AC = c and BC = a. It is requined to prove that $AB^2 = AC^2 + AC^2$



Construetion: Produce BC upto D such that BD = AC = c. Alro draw perpendicular DE at D on BC pnodueed. so that DE = BC = A. Join B, E and A,E

Prorf:

Steps	Justification
(1) In ΔABC = and ΔBDE, AC = BE = C, BC = DE = a and included $\angle ACB$ = included $\angle BDE$	[each right angle]
Hence, $\Delta ABC \cong \Delta BDE$	[sss theonem]
$\therefore$ AB = BE = b and $\angle EBD = \angle CAB$	
(2) Again, Since AC CD and ED $\perp$ CD	$\therefore \angle BAC = \angle EBD$
$\therefore$ AC $\parallel$ ED	
Therefore, ACDE is a tnapezium.	
(3) Moremove, $\angle ABC + \angle CAB = \angle ABC + \angle EBD$ = 1 right angle	[Area of trapezium, = $\frac{1}{2}$ (sum of parallel sides × destance between paralle sides]
$\therefore \angle ABE$ = 1 right angle and ΔABE is a right angled tniangle	
Now area of the trapezium ACDE = area of (Δ region ACB + Δregion BDE + Δ region ABE)	
or, $\frac{1}{2}$ CD (AC + DE) = $\frac{1}{2}$ ac + $\frac{1}{2}$ ac + $\frac{1}{2}$ b^2	

or, $\frac{1}{2}$ (BC + BD) (AC + DE) $= \frac{1}{2}$ [2ac + b^2] or, (a+c) (a + c) = 2ac + b^2 or, a^2 + 2ac + c^2 = 2ac + b^2 or, $b^2 = a^2 + c^2$	

7. AB and CD are two equal chords of a circle with centre O radius r.
   (a) What is the area and circumference of the circle.
   (b) Prove that AB and CD are equidistant from the centre O.
   (c) Construct a square with side equal to AD.

Solution:

(a) Given,

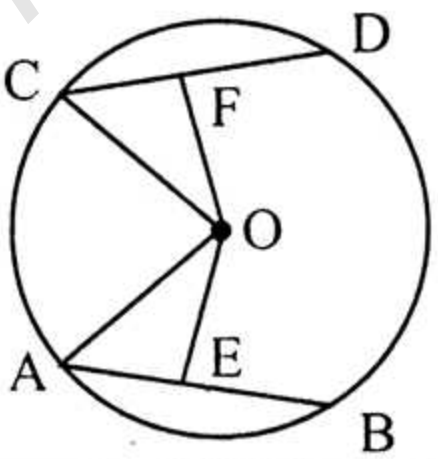
radius of the circle = r

$\therefore$ Area = πr^2

circumfenence = $2\pi r$.

(b) **Proposition:** Let AB and CD be two equal chords of a circle with centre O. It is to be proved that the chords AB and CD are equidistant from the centre.

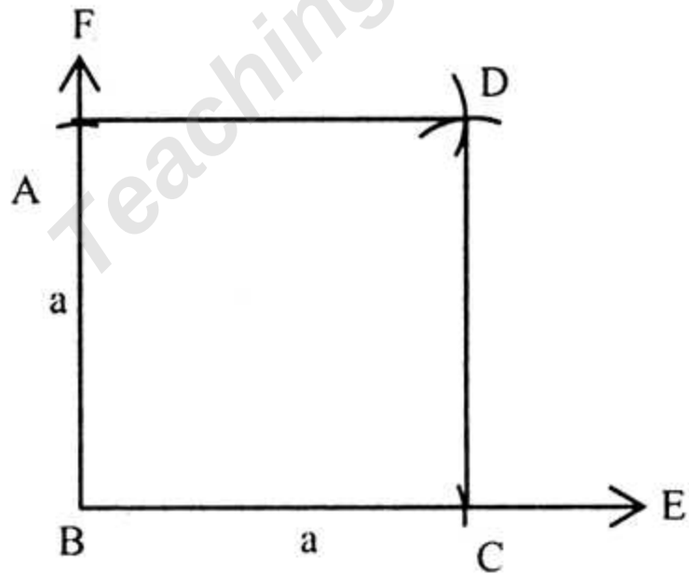
Construction: Draw from O, the perpendiculars OE and OF to the chords AB and CD respectively. Join O, A and O, C.



	Steps	**Justification**
(1)	OE $\perp$ AB and OF $\perp$ CD Therefore, AE = BE and CF = DF. $\therefore$ AE = $\frac{1}{2}$ AB and CF = $\frac{1}{2}$ CD	[Perpendicular from the centre bisects the chord]

(2)	But AB = DC $\frac{1}{2}$ AB = $\frac{1}{2}$ CD.	
(3)	Now between the right – angled ΔOAE and ΔOCF hypotenuse OA = hypotenuse OC and AE = CF. ΔOAE ≅ ΔOCF OE = OF.	[supposition]
(4)	But OE and OF are the distances from O to the chords AB and CD respectively. Therefore, the chords AB and CD are equidistant from the centre of the circle. (Proved)	[radius of same circle] [Step 2] [RHS theorem]

(c)



Let a be the length of a side of a square which is 5 cm in length. The square is to be constructed.

Construction: From any ray BE, we take BC = a. BF ⊥ BC is constructed.

Then we take BA = a from BF. With A and C as centre, we draw two arcs of radius a within the angle ∠ABC. The arcs intersect each other at D. We join A and D. We also join C and D. Then ABCD is the required square.

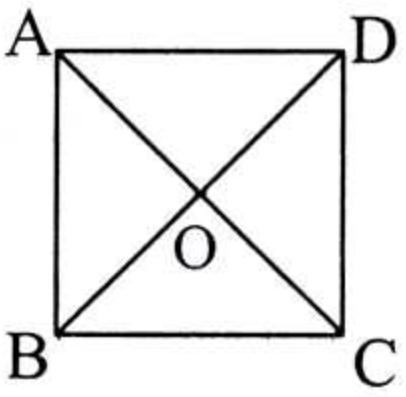
8. Suppose that ABCD be a quadrilateral.
   (a) $\angle A + \angle B + \angle C + \angle D = ?$
   (b) Justify the truth of a by the help of diagonal AC.
   (c) If two diagonal AC and BD are mutually equal and bisect each other at right angles, prove that ABCD is a square.

Solution:

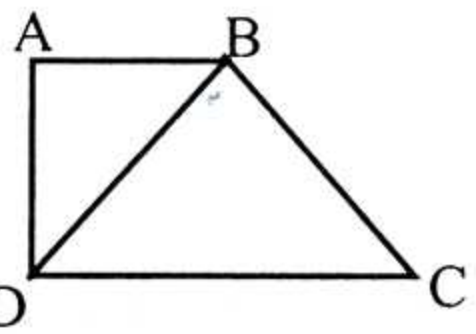
(a) An ABCD is a quadrilateral.
$\therefore \angle A + \angle B + \angle C + \angle D = 360°$
Because we know that, 4 angles of a quadrilateral is 4 right angles.

(b) **Prove that sum of four angles of a quadrilateral is four right angles.**
General method: Have to prove that, sum of four angles of a quadriteral is four right angles.
Proposition: Let, ABCD is a quadrilateral. We have to prove that, $\angle ABC + \angle BCD + \angle CDA + \angle DAB$ = Four right angles.
Construction : Let us join A, C.
Prove: In ΔABC, $\angle ABC + \angle BAC + \angle ACB$ = 2 right angles.....(1)
Again in ΔADC; $\angle ADC + \angle ACD + \angle CAD$ = 2 right angles.....(2)
adding equation (1) and (2) we get,
$\angle ABC + \angle BAC + \angle ACB + \angle ADC + \angle ACD + \angle CAD$ = (2 + 2) right angles.
$\angle ABC + (\angle BAC + \angle CAD) + (\angle ACB + \angle ACD) + \angle ADC$ = 4 right angles
or, $\angle ABC + \angle BAD + \angle ADC + \angle BCD$ = 4 right angles.
That means, $\angle ABC + \angle BCD + \angle CAD + \angle DAB$ = 4 right angles.(Proved)

(c) **Prove that, if two diagonals of a quadrilateral are mutually equal and bisect each other at right angles, it is a square.**
General enunciation: We have to prove that if two diagonals of a parallelogram are mutually equal and bisect each other at right angles, it is a square.



Particular enunciation: Let the diagonals AC and BD of the quadrilateral ABCD are mutually equal and bisect each other at right angles i.e. AC = BD.



and AO = OC, BO = OD and $\angle AOB = \angle BOC = \angle COD = \angle AOD = 90°$

We have to prove that ABCD is a square.

Proof:

Steps	Justification
1. In ΔAOB and ΔBOC AO = OC BO = BO Included $\angle AOB$ = Included $\angle BOC$ so $\Delta AOB \cong \Delta BOC$ $\therefore$ AB = BC. Similarly it is shown that BC = CD = AD so AB = BC = CD = AD $\therefore$ ABCD is a rhombus.	 [Supposition] [common side] [1 right angle] [SAS theorem]
2. AC = BD or, $\frac{1}{2}$ AC = $\frac{1}{2}$ BD or, AO = BO or, $\angle OBA = \angle OAB$ $\therefore \angle OBA = \angle OAB = 45°$ Similarly $\angle OBC = \angle OCB = 45°$	[Supposition] [opposite angles of the two equal sides are equal.] [$\Theta \angle AOB = 90°$] [$\Theta \angle BOC = 90°$]
3. $\angle OBA + \angle OBC = 45° + 45°$ or, $\angle ABC = 90°$ therefore ABCD is a square. (proved)	[if any angle of a rhombus is right angle, it is a square]

Group - D (Info. & Data)

9.

Run scored	1	2	3	4	6	Extra	Total
Scored run in different ways	66	50	36	48		10	240

(a) What do you mean by pie - chart.
(b) Draw a pie - chart.
(c) The angle subtended for openers is 30^o. How many runs scored by openers ?

Solution:

(a) Pie chart is a diagram. Sometimes the collected statistics consists of sum of the elements or it is divided into some classes. If these classes are expressed by different slices of a circle, the diagram obtained is a pie – chart. A pie – chart is also known as a circular diagram.

(b) We know that the angle subtended at the centre is 360°.

If the above stated data is presented as parts of 360°; we get the pie chart of the data.

For 240 runs the angle is 360°

$\therefore$ „ 1 „ „ „ „ $\frac{360°}{240}$

$\therefore$ „ 66 „ „ „ „ $\frac{66 \times 360°}{240} = 99°$

Similarly,

For 50 runs, the angle will be , $\frac{50 \times 360°}{240} = 75°$

$\therefore$ „ 36 „ „ „ „ $\frac{36 \times 360°}{240} = 54°$

$\therefore$ „ 48 „ „ „ „ $\frac{48 \times 360°}{240} = 72°$

$\therefore$ „ 30 „ „ „ „ $\frac{30 \times 360°}{240} = 45°$

$\therefore$ „ 10 „ „ „ „ $\frac{10 \times 360°}{240} = 15°$

Here, the angles obtained are drawn as parts of 360°, which is the pie – chart of the data.

(c) Given, The angle subtended for openers is 30°.

Runs scored by the openers are,

360° angle is for 240 runs

$\therefore$ 1 „ „ „ $\frac{240}{360°}$ „

$\therefore$ 1 „ „ „ $\frac{240 \times 30}{360°}$ „ = 20 runs

$\therefore$ Total runs scored by the openers 20 (Ans.)

Subject: Mathmatics (MCQ)

Time: 40 Minutes | Full Marks: 40

[N: B: Tick (√) the right answer in the supplied answer script against the serial number of the M.C.Q. Each question carries one mark].

01. The result of addition between two largest prime number up to 70 is ?
(a) 89 (b) 97
(c) 136 (d) 128

02. From 01 to100 how many prime numbers are there?
(a) 15 (b) 22
(c) 24 (d) 25

03. 4, 8 , 12, 16 ..... What is the value of 10^{th} term of this pattern?
(a) 34 (b) 40
(c) 42 (d) 35

04. Sum of first ten natural numbers is?
(a) 55 (b) 45
(c) 54 (d) 56

05. In is natural number, then which is always even ?
(a) 2n (b) n + 1
(c) n + 2 (d) n^2

06. What is the lowest prime number
(a) 0 (b) 1
(c) 2 (d) 3

07. 1 metre = - - - - - inches?
(a) 36.39 (b) 37.93
(c) 38.37 (d) 39.37

Answer the question no. (8 - 9) according the following information.
On krishi bank the profit of Tk. 3000 in 5 years is Tk. 1500. Mr. saurav has deposited Tk. 3000 in this bank.

08. What is the profit?
(a) 10% (b) 12%
(c) 13% (d) 14%

09. What is the profit - principal ?
(a) 4400 (b) 4500
(c) 4600 (d) 4700

10. What is the profit of 8 years of saving amount at the above rate?
(a) 2600 (b) 2650
(c) 2500 (d) 2400

11. What is the formula for Simple Interest?
(a) $\frac{c}{p} = (1 - r)^n$ (b) $\frac{c}{p} = (1 + r)^n$
(c) $\frac{1}{p} = (1 - r)^n$ (d) $I = P(1 - r)^n$

12. How much money is 8% of Tk. 5000
(a) 390 (b) 400
(c) 410 (d) 420

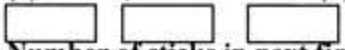
13. 16720 feet = __ nautical mile ?
(a) 1.75 (b) 2.75
(c) 3.75 (d) 4.75

14. Weight of 10 liter of pure water = ?
(a) 1kg (b) 10kg
(c) 1.1kg (d) 1.01kg

15. Magic square of order 3 where the sum of the number is 15.

2	9	4
A	5	3
6	B	8

What are the value of A and B?
(a) A = 7, B = 1 (b) A = 2, B = 3
(c) A = 3, B = 8 (d) A = 5, B = 616.

16. 

Number of sticks in next figure will be?
(a) 12 (b) 13
(c) 16 (d) 10

17. What is the meaning of the word "Hecto"?
(a) 10 times (b) 100 times
(c) $\frac{1}{10}$ (d) $\frac{1}{100}$

18. If a - b = 7
$a^2 + b^2 = 63$ the value of ab is
(a) 1 (b) 3
(c) 5 (d) 7

19. If $x + \frac{1}{x} = 2$ then $x^2 - \frac{1}{x^2} = ?$
(a) 4 (b) 3
(c) 2 (d) 0

20. If $x + y = 7$ and $xy = 10$, what is the value of $x - y$
(a) 3 (b) 9
(c) 29 (d) 89

21. $x^2 - 5x = ?$
(a) −1 (b) 0
(c) 1 (d) 5

22. If $x^2 + \frac{1}{x^2} = 3$ then What is the value of $\frac{x^6 + 1}{x^3}$?
(a) 9 (b) 5
(c) $2\sqrt{5}$ (d) 3

23. The L.C.M of $x^2 + 3x + 2$, $x^2 + x - 2$, $x^2 - 1$ is?
(a) $(x^2 - 1)(x + 2)$ (b) $(x - 15)(x - 8)$
(c) $(x^2 + 1)(x + 2)$ (d) $(x - 2)^2(x^3 - 8)$

24. The H.C.F of $(x + y)^2$, $(x - y)^2$ and $(x^2 - y^2)$ is?
(a) 1 (b) $(x - y)$
(c) $(x + y)$ (d) $(x^2 - y^2)$

25. The factor of $x^3 - 8y^3$ is
(a) $x - 2y$ (b) $x + 2y$
(c) $x^2 - 2xy + y^2$ (d) $x^2 + 2xy + y^2$

26. What is the value of $\left(\frac{x}{x+y} + \frac{y}{x-y}\right) + \left(\frac{x}{x-y} - \frac{y}{x+y}\right)$?
(a) 1 (b) x
(c) 2 (d) 2

27. The factor of $2x^2 - 128$ is
(a) $(2x - 8)(x + 8)$ (b) $2(x + 8)(x - 8)$
(c) $2(x + 4)(x - 8)$ (d) $(x + 8)(x - 16)$

Say ABCD be rhombus and the diagonal AC and BD intersect each other at O.AC = 8cm, BD = 6 cm. answer (28 - 30)

28. The length of AO = _ cm?
(a) 2 (b) 4 (c) 3 (d) 5

29. ∠AOB =?
(a) 120° (b) 60° (c) 90° (d) 180°

30. BO + CO = _ cm?
(a) 6 (b) 7 (c) 8 (d) 14

31. If AB is diameter and CD is chord of a circle, which is true
(a) AB > CD (b) CD > AB
(c) AB ≥ CD (d) none of this

32. In a triangle ABC, AB = 3, BC = 4, CA = 5. then B = ?
(a) 180° (b) 90°
(c) 0° (d) 60°

33. In which quadrant the point (3 , - 3) is located
(a) 1st (b) 2nd
(c) 3rd (d) 4th

34. Which one is the area of the surface of a cubic solid with length 'a'
(a) $6a^2$ (b) $6a^3$
(c) 6a (d) 8a

35. The ratio of circumference and diameter is
(a) π (b) μ
(c) θ (d) β

36. A straight angle is equal
(a) 180° (b) 80°
(c) 90° (d) 270°

37. How many independent and unique data are necessary to draw a quadrilateral?
(a) 3 (b) 5
(c) 4 (d) 6

38. What is the mode for the given data 4, 6, 9, 20, 10, 8, 18, 19, 21, 23, 24 and 30?
(a) 18 (b) 19
(c) 30 (d) no mode

39. What is the median for the given data '6, 3, 4, 8, 7, 9, 11 and 12'?
(a) 5 (b) 6
(c) 7 (d) 8

40. Which is the mid –value of the interval (56 – 70)
(a) 62 (b) 63
(c) 64 (d) 65

Answer:

1. (d)	2. (d)	3. (b)	4. (a)	5. (a)	6. (c)	7. (d)	8. (a)	9. (b)	10. (d)
11. ()	12. (b)	13. (b)	14. (b)	15. ()	16. (c)	17. (b)	18. (d)	19. (d)	20. (a)
21. (b)	22. (c)	23. (a)	24. (a)	25. (a)	26. ()	27. (b)	28. (b)	29. (c)	30. (b)
31. (c)	32. (b)	33. (d)	34. (a)	35. (a)	36. (a)	37. (b)	38. (d)	39. (c)	40. (b)