SET - I

SUMMATIVE ASSESSMENT - II - 2016 - 2017

MATHEMATICS

(English Medium)

Class : IX(P-1) **(Max. Marks : 40)**

PART - A

SECTION - I 4 x 2 = 8

1. Surface Area of Sphere = $4\pi r^2$ (½m)

$$4\pi r^2 = 616$$

$$4\times\frac{22}{7}\times r^2 = 616$$

$$r^2 = \frac{616\times 7}{4\times 22} \Rightarrow r = 7$$ (½m)

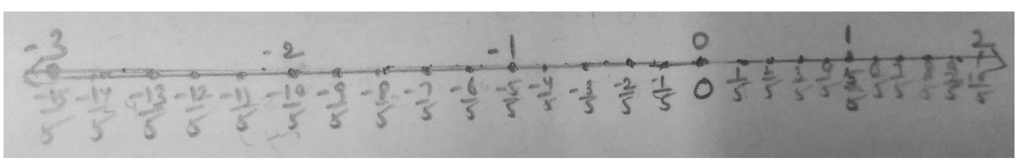
$\therefore$ radius = 7cm

2. Four angles of Quadrilateral 2x, 4x, 5x, 7x, 8x
$2x+4x+5x+7x = 360^0$
$18x = 360^0$, $\Rightarrow x = 20^0$ (½m)
$\therefore$ Angles or Quadrilatiral are 40^0, 80^0, 100^0, 140^0 (½m)

3. S.A.S congrence rule :-
Two triangles are congruent if two sides and the included angle of one triangle are equal to the two sides and included angle of the other triangle (1m)

4. Divide each unit into five equal parts to the right and left sides of zero on the number line. Take 13 ports left side or the zero if represents $\frac{13}{5}$ (1m)

(1m)



SECTION - II 5x4 = 20

5. Volume of the cylinder (V) = $308cm^3$
$\pi r^2 h = 308$
height(h) = 8cm

$$\frac{22}{7}\times r2\times 8 = 308$$

$$r2 = \frac{308\times 7}{22\times 8} = \frac{49}{4}$$

$$\therefore r = \sqrt{\frac{49}{4}} = \frac{7}{2}cm$$ (1m)

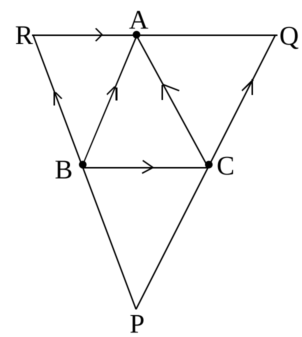
$2\pi\pi r(+h)$

$= 2\times\frac{22}{7}\times\frac{7}{2}\left(\frac{7}{2}+8\right)$

Total surface Area = $= 22\left(\frac{7+16}{2}\right) = 22\times\frac{23}{2}$ (1m)

$= 253 cm^2$

6. AB//QP and BC//RQ. So AB//CQ is a (ABCQ) Parallelogram. Similar BCAR, ABPC are parellegram,



$\therefore$ BC = AQ and BC = RA

A is the mid point of QR

Similar B and C are mid points of PR and PQ respectively

$\therefore AB = \frac{1}{2}PQ,\quad BC = \frac{1}{2}QR$ and $CA = \frac{1}{2}PR$ (1m)

$\therefore$ Perimeter of Δ PQR = PQ+QR+PR

= 2AB+2BC+2CA

= 2(AB+BC+CA)

= 2(Perimeter or Δ ABC) (½m)

$\therefore$ The ratio of Perimeter of Δ PQR and Δ ABC = 2:1 (½m)

7. Suppose, units digits represented by 'x' and tens digit represented by 'y', then the number is 10y + x (½m)

If we reverse the digits then the new number would be 10x+y (½m)

$\therefore$ Sum of two digit number and reverse the digits number = 165

$\therefore$ 10y+x+10x+y = 165 (½m)

11x+11y = 165

$\therefore$ x+y = 15 is the required linear equation (½m)

8. x+y+2 = 0

x+y = -z $\rightarrow$ (1) (½m)

cubins on both sides, we get $(x+y)^3 = (-2)^3$

$x^3+y^3+3xy(x+y) = -z^3$ (½m)

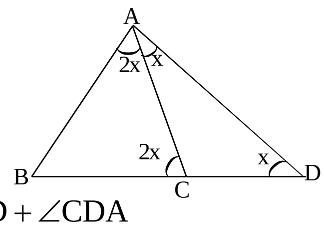
$x^3+y^3+3xy(-z) = -z^3$

$(\therefore x+y=-2)$ (½m)

$x^3+y^3+3xyz = -z^3$

$\therefore x^3+y^3+z^3 = 3xyz$, Hence proved (½m)

9. Let



$\angle ADB = x$

In Δ ACD, AC = CD

$= \angle CAD = \angle CDA = x$ and

Exteriorof $\angle ACB = \angle CAD + \angle CDA$ (½m)

$= x = x = 2x$

In $\Delta ABC, \angle BAC = \angle ACB = 2x (\therefore AB = BC)$ (½m)

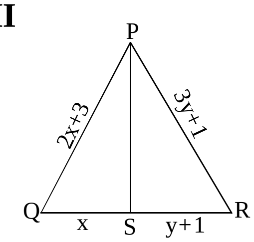
$\angle BAD = \angle BAC + \angle CAD$

$= 2x + x = 3x$ (½m)

$\therefore$ Theratioof$\angle$BADand$\angle$ADB = 3x : x

$\therefore \angle BAD : \angle ADB = 3:1$ (½m)

SECTION - III 4x8 = 32



10-A In ΔPQR, PS+QR, since ΔPRS $\cong$ ΔPRS

By the CP CT

PQ = PR and QS = SR

2x+3 = 3y+1 and x= y+1 (1m)

$\Rightarrow$ 2x-3y = -2 $\rightarrow$ (1) and x-y = 1 $\rightarrow$ (2)

subsitutions x = y+1 in (1) we get

2(y+1) = 3y = -2

2y+2 -3y = -2

-y = -4 $\Rightarrow$ y = 4

subsitution y = 4 in x = y+1

x = 4+1 = 5 (1m)

$\therefore$ PQR = x + y + 1 = 5+4+1 = 10 units

PQ = PR = 2(5)+3 = 13 units, QS = x = 5 units

ΔPQS is right angle

by the pythogorious theorm $PQ^2 = QS^2+PS^2$

$PS^2 = PQ^2 - QS^2$

$= (13)^2 - (5)^2$

$= 169-25$

$PS^2 = 144 \Rightarrow PS = \sqrt{144 = 12}$ units (1m)

$\therefore$ Area of ΔPQR = $\frac{1}{2} \times QR \times PS$

$= \frac{1}{2} \times 10^5 \times 12$

= 60 Sq.units (1m)

10-B Height of a conical tent (h) = 9m

Diameter of the base (d) = 24m

radius (r) = $\frac{d}{2} = \frac{24}{2} = 12m$ (1m)

C.S.A of the cone = πrl

Where $l = \sqrt{r2 + h2}$

$= \sqrt{12^2 + 9^2} = \sqrt{144 + 81} = \sqrt{225} = 15\text{m}$ (1m)

C.S.A = πrl

$= \frac{22}{7} \times 12 \times 15 \text{sq.m}$ (1m)

cost of canvas per sq.m = Rs.14

Total cost of the canvas cloth = $\frac{22}{7} \times 12 \times 15 \times 14$

Rs. 7920.00 (1m)

11-A The rationalisms factor of $7 - 4\sqrt{3}$ is $7 + 4\sqrt{3}$ and the rationalism factor of $\sqrt{3} - 2$ is $\sqrt{3+}2$ (1m)

$$\frac{1}{7-4\sqrt{3}} + \frac{1}{\sqrt{3}-2} = \frac{1}{7-4\sqrt{3}} \times \frac{7+4\sqrt{3}}{7+4\sqrt{3}} + \frac{1}{\sqrt{3}-2} \times \frac{\sqrt{3}+2}{\sqrt{3}+2}$$

$$= \frac{7+4\sqrt{3}}{(7)^2 - (4\sqrt{3})^2} = \frac{\sqrt{3}+2}{(\sqrt{3})^2 - (2)^2}$$

$$= \frac{7+4\sqrt{3}}{49-48} + \frac{\sqrt{3}+2}{3-4}$$

$$\frac{7+4\sqrt{3}}{1} + \frac{\sqrt{3}+2}{(-1)}$$

$$= 7 + 4\sqrt{3} = \sqrt{3} - 2 = 5 + 3\sqrt{3}$$

(1½m)

$$\therefore \frac{1}{7-4\sqrt{3}} + \frac{1}{\sqrt{3}-2} = a + b\sqrt{3} = 5 + 3\sqrt{3}$$

$$\therefore a = 5, b = 3$$

(½m)

$$a3 + b3 = (5)3 + (3)3$$

$$= 125 + 27 = 152$$

(1m)

11-B Thickness of disc = 5mm, $\frac{5}{10}$ cm = 0.5cm

Radius of the disc = 3.5cm

curved surface area of cylinder = 462cm

$\therefore 2\pi rh = 462 \rightarrow$ (i)

Let the no. of discs = x

Height of the cylinder = h

= thickness of disc X no. of discs

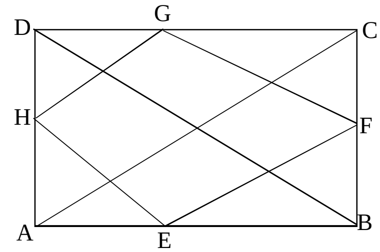
= 0.5x

$\therefore 2\pi rh = 2 \times \frac{22}{7} \times 3.5 \times 0.5x \rightarrow$ (ii) by (i) & (ii) , $2\times\frac{22}{7}\times3.5^{0.5}\times0.5x=462$

$\therefore x=\frac{462}{2\times22\times0.5\times0.5}=\frac{462}{11}$ = 42

$\therefore$ No. of discs = 42

12-A Given :- ABCD Quadrilatiral, E,F,G and H are mid points of AB,BC,CD and DA



RTP : EFGH is a parallelogram

Proof: Join $\overline{AC}$ and BD, In ABC. E,F are the mid points of sides AB and BC

$\therefore \overline{EF}//\overline{AC}$ and $EF=\frac{1}{2}AC$ (by the mid point there on)

Also in ACD, HG//Ac and HG = $\frac{1}{2}AC$

$\therefore$ EF//HG and EF = HG

Now in EFGH, EF=HG and EF//HG

$\therefore$ EFGH is a parallelogram

12-B Let f(x) = $f(x)=px^2+5x+^2$ as

$x-2$ and $x-\frac{1}{2}$ are factors of f(x)

then $f(2)=0$ and $f\left(\frac{1}{2}\right)=0$

$\therefore f(2)=P(2)^2+5(2)+r=0$

$=4p+10+r=0$

$\Rightarrow 4P+r=-10\rightarrow(1)$

$\therefore f\left(\frac{1}{2}\right)=p\left(\frac{1}{2}\right)^2+5\left(\frac{1}{2}\right)+r=0$

$=\frac{p}{4}+\frac{5}{2}+r=0$

= p + 10 + 4r = 0

= p + 4r = -10 $\rightarrow$ (2)

From (1) and (2)

$4P+r=P+4r$

$4P-p=4r-r$

$3P=3r$

$\therefore P=r$

Hence proved

13-A The given equation is $2x+3y = 12$

X	0	6
Y	4	0

(1m)

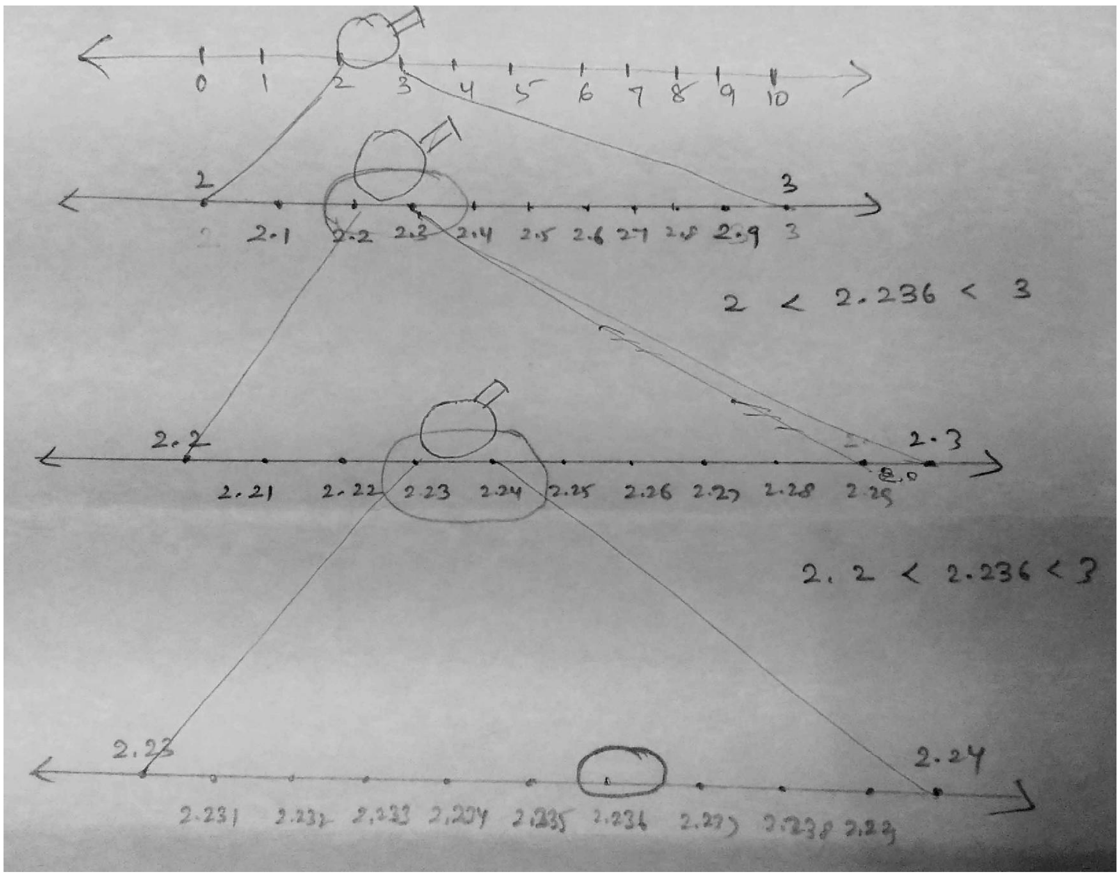
(Drawn the graph) (2m)

(i) From the graph when $y = 2$ then $x = 3$ Solutes is $(3,2)$

(ii) From the graph $x = -3$, then $y = 6$ solutes is $(-3,6)$ (1m)

OR

13-B Value of $\sqrt{5}$ upto 3 decimals is 2.236



PART - B

SECTION - IV

14 (B)	15(C)	16(B)	17(A)	18(C)	19(A)
20(A)	21(C)	22(D)	23(B)	24(C)	25(B)
26(A)	27(C)	28(B)	29(B)	30(B)	31(B)
32(C)	33(D)				