SUMMATIVE ASSESSMENT - III - 2016-2017
MATHEMATICS - PAPER - II
(English Medium)
PRINCIPLE OF VALUATION

Class : IX

SECTION - I

1. Given the interior angles of a trinalge = $(3x-10),(3x+10)^0,(3x^0)$

   Sum of the angles = $(3x-10)+(3x+10)+3x+9x=180^0$

   $$9x=180^0$$

   $$x=\frac{180^0}{9}=20^0$$

   $\therefore$ The angles are $=[(3\times 20)-10],[(3\times 20)+10],(3\times 20)$

   $= 50^0, 70^0, 60^0$

2. i) Points that lies $\overline{OY}$ on is for $x=0, y\geq 0$

   The point which satisifies the condition is allowed.

   ii) Points that lies on $\overline{OX}^1$ is *(x,y)* for $x=0, y\leq 0$

   The point which satisifies the codnition is allowed.

3. Vertically opposite angles

   $\lfloor AOB = \lfloor COD$ (vertically oposite)

   $\lfloor AOD = \lfloor BOC$ (vertically opposite)

4. In the ΔOAB

   OA = OB = Radius of the circle. In an Isocelleous the angles which are opposite to the equal sides are equal.

   Hence = $\lfloor OAB = \lfloor OBA$

SECTION - II

5. Given data = 10, 15, 20, 25, 15 x

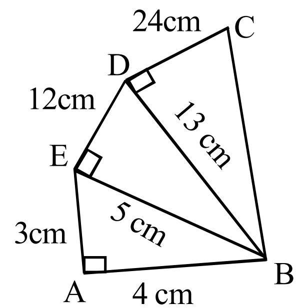
Arrainging in order = 10, 15, 15 x, 20, 25

If mode is x than x = 15

Here median is also = 15. $\therefore\ x = 15$

Sum of scoles = 10 + 3 (15) + 20 + 25 = 10

$$Mean = \bar{x} = \frac{\sum xi}{n} = \frac{100}{6} = 16\frac{2}{3}$$



6. Given $\overline{EA} \perp \overline{AB}$

$\overline{DE} \perp \overline{BE}$

$\overline{CD} \perp \overline{BD}$

Area of ABCDE = Area of ΔABE

+ Area of ΔBED

+ Area of ΔBDC Area of $\Delta^4\ \frac{1}{2} \times$ base $\times$ high

$$= \frac{1}{2} AB \times AE + \frac{1}{2} BE \times DE\ + \frac{1}{2} BD \times CD$$

$$= \frac{1}{2} = 4 \times 3 + \frac{1}{2} 5 \times 12 + \frac{1}{2} \times 13 \times 24$$

= 6cm^2 + 30cm^2 + 156cm^2 = 192 cm^2

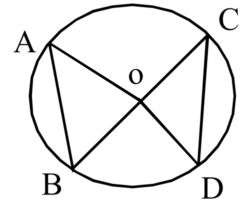
7. Statement : Equal cholds of a circle subtend equal angels at the center.

Given : O is the center of a circle

in which $\overline{AB}, \overline{CD}$ two

equal cholds. $\lfloor AOB, \lfloor COD$

are the angles subtended at the center.



R.T.P. : $\lfloor AOB = \lfloor COD$

8. For picking a number (Natural Number) Randomly

Upto $10r$, the possible out comes = 100

Probability of an event P (E) = $\dfrac{\text{No. of required out comes}}{\text{Total out comes}}$

$$P(E) = \frac{4}{100} = \frac{1}{25}$$

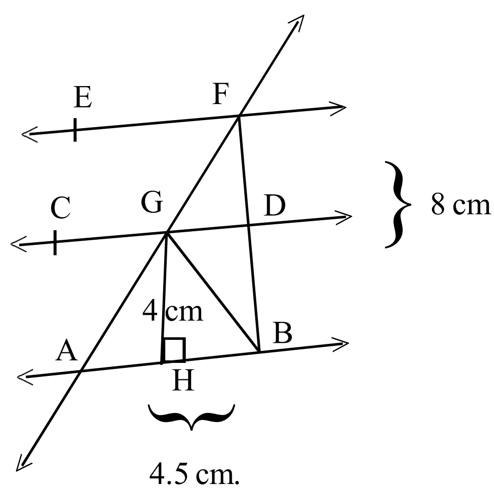
9. Given

Weights in Kg (n)	30	35	40	45
No. of students (f)	10	14	10	6

$f.x$ 300 490 400 270

Mean $= \dfrac{\sum f.n.}{\sum f} = \dfrac{1460}{40} = 36.5kg$

10. a)Given



$\overline{AB} \parallel \overline{CD} \parallel \overline{EF}$
an equi distance $\overline{AF}$
is a transversal

$\overline{GH} \perp \overline{AB}$

GH = 4 cm AB = 4.5 cm FB = 8 cm

To find Area of ΔGDF

In the given figure In ΔABF D is the mid point of $\overline{BF}$. (Because all the parallel lines are at an equi distance)

Similarly G is the mid point of $\overline{AF}$ (Since BD = DF AG = GF)

Hence G is the mid - point. $\overline{BD}$ is the median.

Median divides the triangle into two equal areas.

$\therefore$ *ar* ΔABG = *ar* ΔBGF

Similarly for ΔBGF $\overline{GD}$ is the median.

$\therefore$ *ar* ΔABG = 2 *ar* ΔDGF

$ar\ \Delta DFG = \frac{1}{2}\ ar\ \Delta ABG$

Area of $\Delta ABG = \frac{1}{2}$ base $\times$ height $= \frac{1}{2}\times 4.5\times 4^2 = 9cm^2$

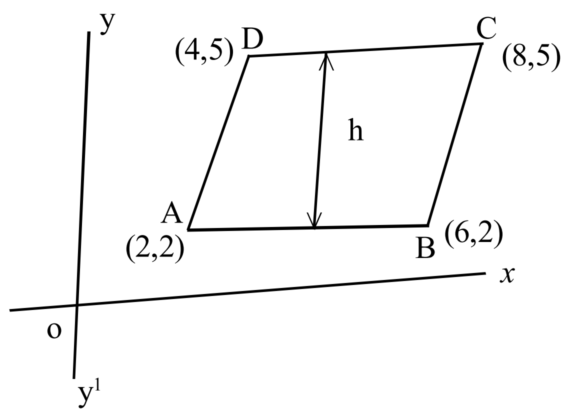
$\therefore\ ar\ \Delta DGE = \frac{1}{2}\times 9 = 4.5cm^2$

(or)

b) Area of paralleogram

$=$ base $\times$ heigh

$=$ AB $\times$ h



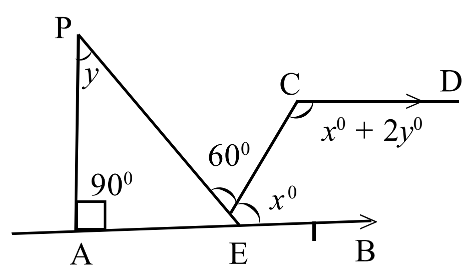
AB $= |x_2 - x_1| = |6-2| = 4$

h $= |y_2 - y_1| = |5-2| = 4$

Area $= 4 \times 3 = 12$ sq. units

11. Given $\overrightarrow{AB} \parallel \overrightarrow{CD}$

$\overrightarrow{CE}$ is a transseral



$\angle DCE, \angle BEC$ are (Interior angles on one side of a transversal)

$\angle DCE| + \angle BEC = 180^0$ $\qquad \therefore\ \overrightarrow{AB} \parallel \overrightarrow{CD}$

$\therefore (x+2y)^0 = x^0 = 180^0$

$2(x+y)^0 = 180^0$

$(x+y)^0 = 90^0 \qquad (1)$

$\angle AEP + \angle PEC + \angle CEB + 180^0$ (Angles an one side of a line)

$\angle AEP + 60^0 + x^0 = 180^0$

$\angle AEP + x^0 = 120^0 \qquad (2)$

Now in ΔAPE $\angle APE + \angle PAE + \angle AEP = 180^0$

$$y^0 + 90^0 + \lfloor AEP = 180^0 \Rightarrow \lfloor AEP = 90^0 - y^0$$

$$\lfloor AEP + y^0 = 90^0 \qquad \text{But from (1)}$$

$$\lfloor AEP + y^0 = x^0 + y^\phi$$

$$\therefore \lfloor AEP = x^0$$

Substinting in (2) $x^0 + x^0 = 120^0 \Rightarrow x = 60^0$

$$\therefore y^0 = 90^0 - x^0 = 90^0 - 60^0 = 30^0$$

(or)

b)

	Weight *(kg) (x)*	No.of Parcel *(f)*	$f \times x$	*c.f.*
	50	25	1250	25
	65	34	2210	59
	75	38	2850	97
	90	x	$90x$	$97+x$
Median class	110	47	5170	$144+x$
	120	16	1920	$160+x$
		$(160+x)$	$13,400 + 90x$	

Mean = 85 (Given)

$$\text{Mean} = \frac{\sum f.x.}{\sum f} = \frac{13,400 + 90x}{160 + x} = 85$$

$= 13,400 + 90x = 13600 + 85x$

$90x - 85x = 13,600 - 13,400 = 200$

$5x = 200$

$x = 40$

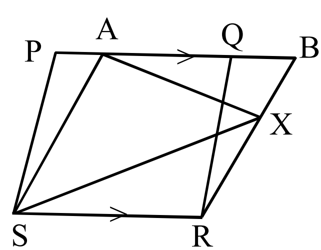
Median : $\therefore$ N is $160 + 40 = 200$ even

$$\text{Median} = \left(\frac{N}{2} + 1\right)^{th} = 101^{\text{th}}$$

101th frequency is = 90

Median = 90

12. a) In the given figure



$\prime$ PQRS and $\prime$ ABRS

are two paralleogram on the same base $\overline{SR}$.

Hence $ar \prime$ PQRS = $ar \prime$ ABRS - (1)

In $\prime$ ABRS ΔASX is the triangle on the same base $\overline{AS}$

Hnece $ar\ \Delta ASX = \frac{1}{2}\ ar.\ \prime$ PQRS

(or)

b) In the given figure

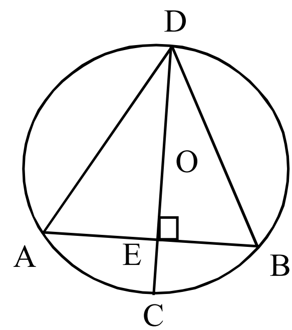
$\overline{CD} \perp \overline{AB}$ (perpendicular bisebol)

Given O is the centre of the circle.

$\overline{AB} \perp \overline{CD}$

To prove : $\overline{AD}, \overline{BD}$

Construction : Join $\overline{AD}, \overline{BD}$



Proof : In ΔAED, ΔBE

$\overline{AE}, \overline{BE}$ (Perpendicularly bisects)

$\overline{DE}, \overline{DE}$ (Common side)

$\underline{|AED} = \underline{|BED} = 90^0$

under Rh.S congruency or (S.A.S) congruency

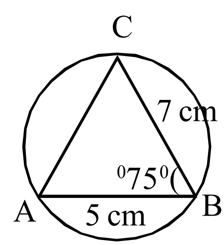
$AED \cong BED$

under CPCT $\overline{AD} = \overline{BD}$

13. a) Consturction of trinagle - 1

Construction of circum circle - 1½

Steps of construction : 1



b) Construction - 2½

Steps of consruction

Draws a line segment $\overline{BC}$ = 5cm

Draw an angle $\underline{|ABC} = 60^0$

Since $\overline{AB} + \overline{AC} =$ 8cm take BD = 8 cm

Draw an arc from B by taking 8 cm as radius.

Join $\overline{CD}$

Draw a perpendicular biscect to $\overline{CD}$

If intersect $\overline{BD}$ at A

Join $\overline{AC}$ our required ΔABC obtained.

PART - B

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