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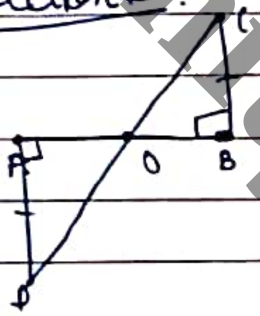
Answer Key Unit Test Paper 3 -IX Mathematics(By Deepika Bhati)

Section-A :-

1. (a) 55, 35
2. (a) 4 cm
3. (d) 95°
4. (a) 130
5. (a) 34

Section B :-

6.



Given :- AD = CB

$\angle A, \angle B = 90°$

To prove :- CD bisects AB.

In ΔCOB & ΔDOA :-

CB = AD (equal perpendiculars)

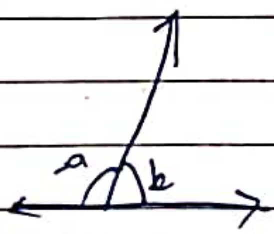
$\angle CBO = \angle DAO$ (90°)

$\angle AOD = \angle COB$ (V.O.A)

$\therefore \Delta COB \cong \Delta DOA$ (by AAS)

AB = BO (by CPCT) so CD bisects AB.

7.



$b + 30° = a$

$a + b = 180°$

$b + 30° + b = 180°$

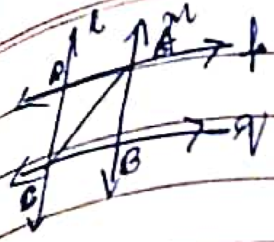
$2b + 30° = 180°$

$2b = 150°$

$b = 75°$

$a = 75 + 30 = 105°$

$b = 75°$

8


Given :- $l \parallel m$ & $p \parallel q$.

To prove: $\triangle ABC \cong \triangle CDA$

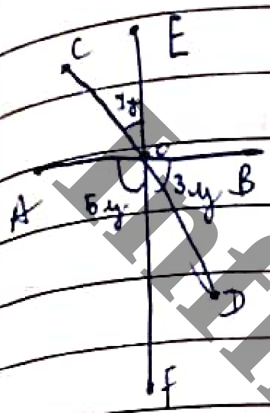
In $\triangle ABC$ & $\triangle CDA$:-

$\angle CAB = \angle ACD$ (alt. int.)

$AC = AC$ (common)

$\angle DAC = \angle BCA$ (alt. int.)

$\therefore \triangle ABC \cong \triangle CDA$ (by ASA)

3


Given : $\angle COE = 4y$

$\angle BOD = 3y$

$\angle AOF = 5y$

To find : y

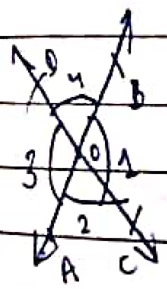
$\angle COE = \angle FOD = 4y$ (V.O.A)

$5y + 4y + 3y = 180°$ ~~(.........)~~ (straight angle)

$12y = 180°$

$y = \frac{\cancel{180}^{15}}{\cancel{12}_{1}}$

$y = 15°$

10


$\angle 1 + \angle 2 = 180°$
$\angle 1 + \angle 4 = 180°$ } (linear pair)

$\cancel{\angle 1} + \angle 2 = \cancel{\angle 1} + \angle 4$

$\angle 2 = \angle 4$

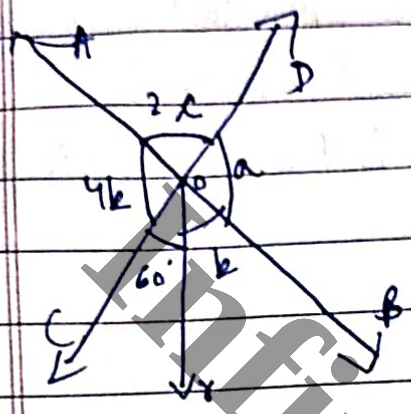
$\angle 1 + \angle 2 = 180°$
$\angle 2 + \angle 3 = 180°$ (linear pair)

$\angle 1 + \cancel{\angle 2} = \cancel{\angle 2} + \angle 3$

$\angle 1 = \angle 3$

So, we can say vertically opposite angles are equal.

11.



Given : AB and CD are intersecting lines
$\angle AOC = \angle DOB = 4b = a$ (V.O.A)

To find : a, b, c

$4b + b + 60° = 180°$ (straight angle)

$5b + 60° = 180°$

$5b = 120°$

$b = \cancel{\frac{120}{5}}\ 24°$

$b = 24°$

$a = 4b = 4(24) = 96°$

$2c + a = 180°$

$2c + 96 = 180°$

$2c = 180° - 96°$

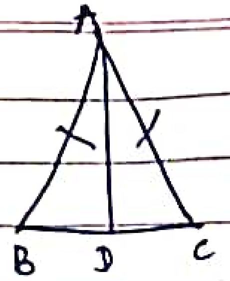
$2c = 84$

$c = \frac{84}{2}$

$c = 42°$

$\therefore a = 96°, b = 24°, c = 42°$

12.



Given ΔABC is isosceles.

$AB = AC$

AD is altitude so $\angle ADB$ and $\angle ADC$ are $90°$

To prove (i) AD bisects $\angle A$

In ΔABD and ΔACD :-

$AB = AC$ (given)

$AD = AD$ (common)

$\angle ADB = \angle ADC$ ($90°$)

$\therefore \Delta ABD \cong \Delta ACD$ (by RHS)

So, $\angle BAD = \angle CAD$ (by CPCT) Hence, we can say AD bisects $\angle A$.

(ii) AD bisects BC :-

By CPCT, $BD = DC$ so, we can say AD bisects BC

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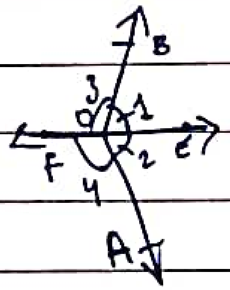


Given : FO bisects $\angle AOB$ so, $\angle 1 = \angle 2$.

To prove : $\angle FOB = \angle FOA$

$$\left.\begin{aligned}\angle 1 + \angle 3 &= 180° \\ \angle 2 + \angle 4 &= 180°\end{aligned}\right\} \text{linear pair}$$

$\cancel{\angle 1} + \angle 3 = \cancel{\angle 2} + \angle 4$

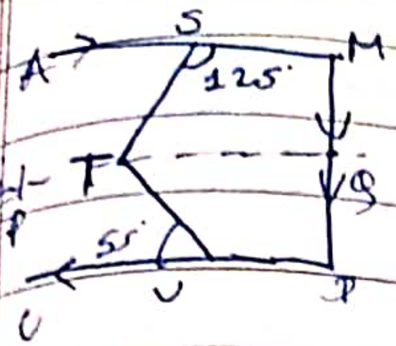
$\angle 3 = \angle 4$

$\angle FOB = \angle FOA$

Hence, Proved.

Section-D :-

14



Given :- AM ∥ CD

$\angle MST = 125°$

$\angle CUT = 55°$

Construct PQ ∥ to AM and DC.

(i) $\angle AST + \angle MST = 180°$ (linear pair)

$125° + \angle AST = 180°$

$\angle AST = 180° - 125°$

$\angle AST = 55°$

(ii) $\angle S\cancel{D}MD = 90°$

$\angle SMD + \angle UDM = 180°$ (co-interior)

$90° + \angle UDM = 180°$

$\angle UDM = 90°$

(iii) $\angle MST\cancel{Q} + \angle STQ = 180°$

$125° + \angle STQ = 180°$

$\angle STQ = 180° - 125°$

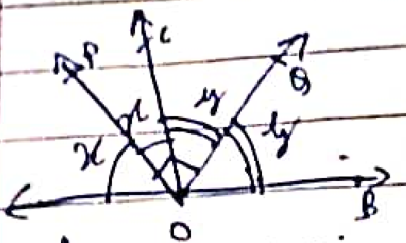
$\angle STQ = 55°$

$\angle QTS = \angle CUT = 55°$ (alt. int. angles)

$\angle STU = 55° + 55°$

$= 110°$

Section - E :-

25. 

$\angle POC + \angle COQ = 90^\circ$

$x + y = 90^\circ$

$\angle AOP + \angle POC + \angle COQ + \angle QOB = \angle AOB$

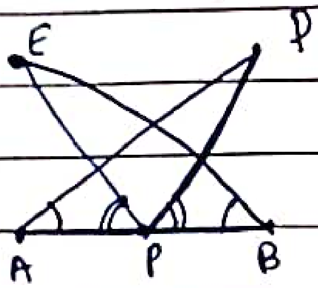
$x + x + y + y = \angle AOB$

$2(x+y) = \angle AOB$

$2(90^\circ) = \angle AOB$

$180^\circ = \angle AOB$

So, A, O & B are collinear pt.s.

26. 

Given :- $\angle DAP = \angle EBA$, P is midpoint of AB

$\angle EPA = \angle DPB$

To prove: (i) $\Delta DAP \cong \Delta EBP$

In ΔDAP & ΔEBP :-

$\angle DAP = \angle EBP$

$AP = PB$ (P is midpoint of AB)

$\angle EPA = \angle DPB$

Add $\angle EPD$ on both sides

$\angle DPA = \angle EPB$

$\therefore \Delta DAP \cong \Delta EBP$ (by ASA)

(ii) $AD = BE$, by CPCT.