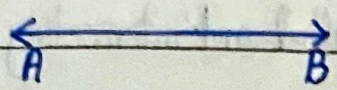
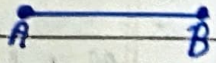
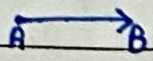
Ch-7 (Part-1)

Parallel and intersecting lines

Introduction

1.) Line is a collection of indefinite point. 

2.) Line Segment shows shortest distance between two given points. 

3.) Ray is a the combination of line and line segment that has one infinity extending and one terminating end. 

4.) Parallel lines are two lines that are always the same distance apart and never meet or cross.

5.) When 2 lines intersect at a point, then these lines are called intersecting lines and the point at which they intersect is called point of intersection.

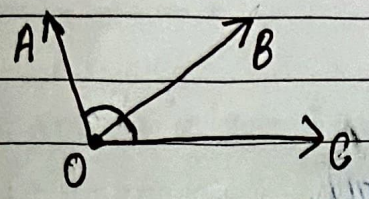
6.) When 2 lines intersect, they meet at 90° angle. These lines are called Perpendicular lines

7.) Types of Angles

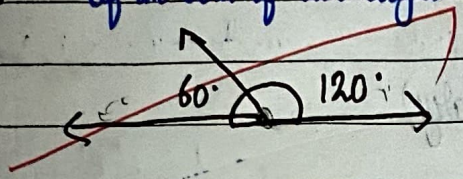
a) Complementry angles → Two angles are called complementry, if the sum of the measure is 90°.

b) Supplementry angles → Two angles are said to be supplementry, if the sum of these angles is 180°.

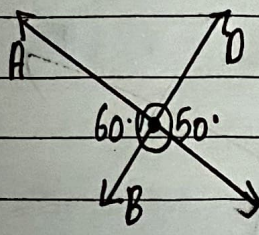
8.) Adjascent angles → Two angles ~~are~~ in a plane are said to be adjescent. if they have a common vertex and a common ~~area~~ arm, in between the other two arm.



9.) Line pair :- If the sum of two adjascent angles is equal to 180°



10.) Vertically opposite angles :



Ex-7.1

Q! Identify ---------- supplementary

a) 63°, 117°

⇒ 63° + 117° = 180° (supplementary)

b) $59°, 31°$

$\Rightarrow$ $59° + 31° = 90°$ (complementary)

c) $121°, 59°$

$\Rightarrow$ $121° + 59° = 180°$ (Supplementary)

d) $90°, 90°$

$\Rightarrow$ $90° + 90° = 180°$ (Supplementary)

Q2 Find ---------- angles.

a) $22° = 90° - 22° = 68°$
b) $12° = 90° - 12° = 78°$
c) $43° = 90° - 43° = 47°$

Q3

a) $83° = 180° - 83° = 97°$
b) $109° = 180° - 109° = 71$
c) $37° \quad 180° - 37° = 143°$

Q4 If ---------- two angles.

Let the angle be $1x, 3x$

$1x + 3x = 90°$
$4x = 90°$
$x = \frac{90°}{4} = 22.5°$

1st angle = 22.5°
2nd angle = 3 × 22.5° = 67.5°

Q6 One of ---------- measures.

Let the first angle be 'x' second angle be x + 24

$x + x + 24 = 180°$
$2x + 180° - 24$
$2x = 156°$

$x = \frac{156}{2} = 78°$

Second angle = 78 + 24 = 102°

Q7 An angle is ---------- angle?

Let the angle be 'x' and $\frac{2}{3}x$

$\frac{x}{1} + \frac{2}{3}x = 90°$

$\frac{3x + 2x}{3} = 90°$

$\frac{5x}{3} = 90°$

$5x = 3 \times 90°$

$x = \frac{270°}{5} = 54°$

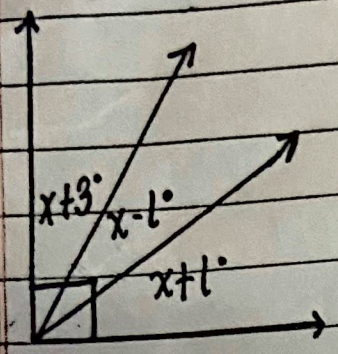
2nd angle $= \frac{2}{3}x$

$\frac{2}{3} \times 54 = 36°$

3.11.26

Ex-7.1

Q.9 a)



⇒ $x+3+x-1+x+1=90°$

$3x+3=90°$

$3x=90-3$

$3x=87$

$x=\frac{87}{3}=29°$

1st angle $=x+3$

$29+3$

$\boxed{32°}$

2nd angle $=x-1$

$29-1$

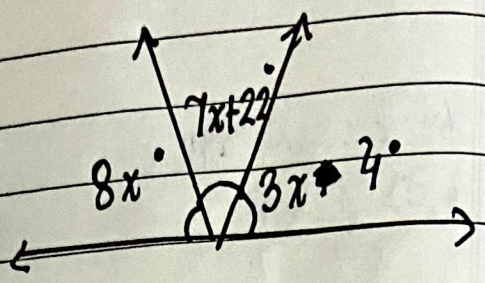
$\boxed{28°}$

3rd angle $=x+1$

$29+1$

$\boxed{30°}$

~~Q.10~~ b)



$8x+7x+22+3x-4=180°$

$18x+18=180°$

$18x=180-18$

$18x=162°$

$x=\frac{162}{18}=9$

1st angle $=8x$

$8\times9=72°$

2nd angle $=7x+22$

$7(9)+22$

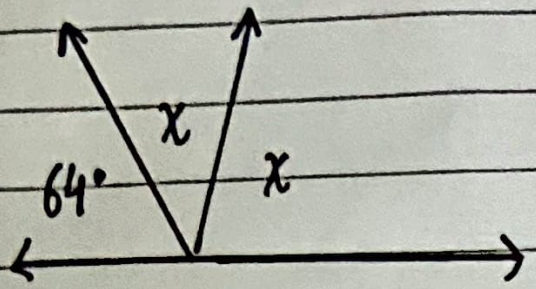
$63+22=83°$

3rd angle $=3x-4$

$3(9)-4$

$27-4=23°$

Q.10



$64° + x + x = 180°$

$64° + 2x = 180°$

$2x = 180° - 64°$

$= 116°$

$x = \frac{116}{2} = 50°$

$\angle XQS = 58°$, $\angle XQP = 58°$

$\angle XQS = 64° + 58° = 122°$

Reflexive $\angle QYP = 360° - 58° = 302°$

12.11.26

Ex-7.2

Q1

Ans- Transversal

Q2

Ans- 8 angles

Q3

Ans- False. the sum of co-interior angle is 180°.

~~Q5~~ Q4X

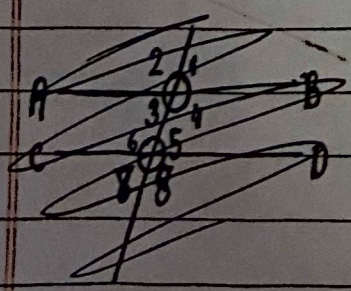
Q5

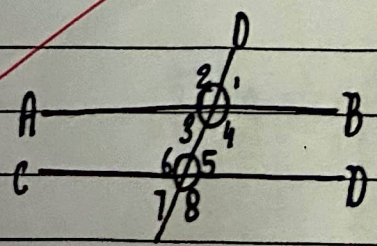
Ans- Smaller angle = x
Biggest angle = 5x

$x + 5x = 180°$
$6x = 180$
$x = \frac{180}{6} = 30°$

Biggest angle = 150°
Smaller angle = 30°

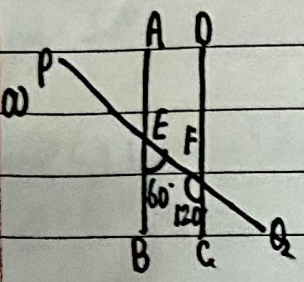
Q6





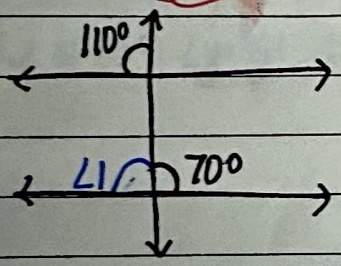
a) ∠1 and ∠2 = Adjascent / linear pair
b) ∠1 and ∠3 = Vertically opposite angle
c) ∠1 and ∠5 = Corresponding
d) ∠4 and 6 = Alternate
e) ∠3 and ∠7 = Corresponding
f) ∠6 and ∠8 = VOA

Q7 a)



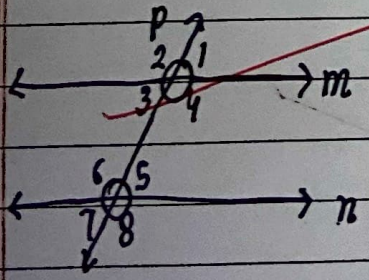
AB ∥ CD because sum of co-interior is 180°

b)



∠1 = 110° Corresponding angle
∠1 + 70° = 180° (Adjascent)
180° = 180°, So AB ∥ CD

Q8



Ans- $\angle 3 = 55^\circ$

$\angle 3 = \angle 1 = 55^\circ$ (Vertically opposite)

$\angle 1 + \angle 2 = 180^\circ$ (Adjascent)

$55^\circ + \angle 2 = 180^\circ$

$\angle 2 = 180^\circ - 55^\circ$

$\angle 2 = 125^\circ$

$\angle 2 = \angle 4 = 125^\circ$

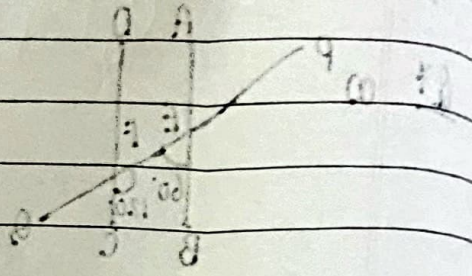
$\angle 1 = \angle 5 = 55^\circ$ (corresponding)

$\angle 6 = \angle 4 = 125^\circ$ (Corresponding)

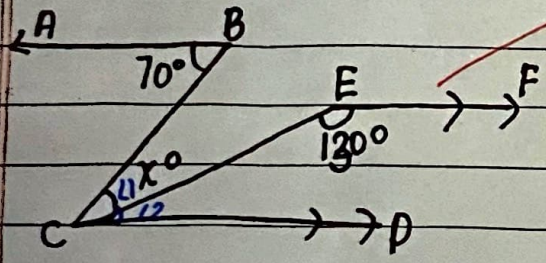
$\angle 7 = \angle 5 = 55^\circ$ (VOA)

$\angle 8 = \angle 6 = 125^\circ$

$\angle 6 = \angle 8 = 125^\circ$ (VOA)



Q.9



Ans- $\angle B = \angle BCD = 70^\circ$ [Alternate angle]

$\Rightarrow 130^\circ + \angle 2 = 180^\circ$ [Co interior angle]

$\Rightarrow \angle 2 = 180^\circ - 130^\circ$

$\Rightarrow \angle 2 = 50^\circ$

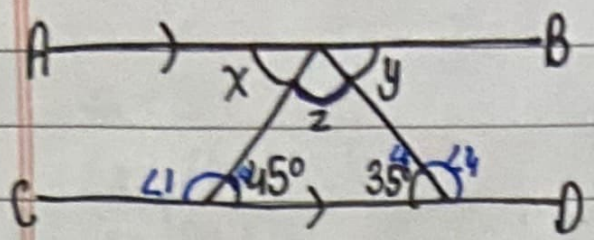
$\Rightarrow \angle 1 + \angle 2 \Rightarrow 70^\circ$

$\Rightarrow \angle 1 + 50^\circ \Rightarrow 70^\circ$

$\Rightarrow \angle 1 = 70^\circ - 50^\circ = 20^\circ$

$\therefore x = 20^\circ$

Q.10



Ans. ~~$\angle 1 = \angle 2$~~ $\angle 3 = \angle x$ (~~Corresponding angle~~) alternate

$\Rightarrow \angle x = 35^\circ$

$\Rightarrow \angle 2 = \angle y$ (~~Corresponding angle~~) alternate

$\Rightarrow \angle y = 45^\circ$

$\Rightarrow \angle x = \angle x + \angle y = 35 + 45 = 80^\circ$

$\Rightarrow \angle z = 180 - 80 = 100^\circ$

$\therefore \angle x$ is 35°, $\angle y = 45^\circ$, $\angle z = 100^\circ$.