EXERCISE7B

ANSWER1
Acc to question ,
AOB is straight line so ,

$$180-62=118$$

X=118

ANSWER2
The value of x can be calculated by ,

$$180=(3x-7)+55+(x+20)$$
$$180=4x+68$$
$$4x=180-68$$
$$4x=112$$
$$x=\frac{112}{4}=28$$

hence, the $\angle AOC$ = 3x-7 = 3 X 28-7= 77°
∠BOD = x+20 = 28+20 =48°

ANSWER3
The value of X can be calculated by,

$$180=(3x+7)+(2x-19)+x$$
$$180=6x-12$$
$$6x=180+12$$
$$x=\frac{192}{6}=32$$

Hence, the ∠AOC= 3X+7=3 X 32+7= 103°
the ∠COD = 2x-19 = 2 X 32-19 = 45°
∠BOD= 32°

Answer4
Given x:y:z = 5:4:6
Let be x=5t°
Y=4t°
Z= 6t°

$$x + y + z = 180$$
$$5t + 4t + 6t = 180$$
$$15t = 180$$
$$t = \frac{180}{15} = 12$$

Hence, x=5 X 12=60
y = 4 X 12=48
z = 6 X 12= 72

Answer5
let value of x be

$$180 = (3x + 20) + (4x - 36)$$
$$180 = 7x - 16$$
$$7x = 180 + 16$$
$$7x = 196$$
$$x = \frac{196}{7} = 28$$

Answer6
Given, ∠AOC= 50°
Acc to vertical opposite angle , ∠BOD = 50°

AB is straight line so,

$$180 - 50 = 130$$

Hence, ∠BOC=130°
And ∠AOD = 130°

Answer7
Let on line AB we get value of x

$$180 = x + 50 + 90$$
$$180 = x + 140$$
$$x = 180 - 140$$
$$x = 40$$

Now, let on the line CD we get value of t,

$$180 = t + x + 50$$
$$180 = t + 40 + 50$$
$$180 = t + 90$$
$$t = 90$$

Now, on line EF we get the value of z

$$180 = z + t + x$$
$$180 = z + 90 + 40$$
$$180 = z + 130$$
$$z = 50$$

So, the value of Y will be acc to vertically opposite y=40

Answer8

Acc to vertically opposite angles

$\angle COE = \angle DOF = 5x$

So,

$$180 = 3x + 5x + 2x$$
$$180 = 10x$$
$$x = 18$$

So, $\angle AOD = 2x = 2 \times 18 = 36°$

$\angle COE = 5x = 5 \times 18 = 90°$

$\angle AOE = 3x = 3 \times 18 = 54°$

Answer9

Let the angle be x°

$$180 = 5x + 4x$$
$$180 = 9x$$
$$x = 20$$

Hence , the measuring angle be 5x=100° and 4x= 4 X 20=80°

Answer 10

Given , if 2 straight lines intersect each other in a such a way that one of the angles formed measures 90°

Acc to right angle, others angles be also 90° because intersect at right angle given equal angles.

Answer11
Given , ∠ BOC + ∠AOD = 280
Vertically opposite
∠BOC=∠AOD= 280/2=140°
So, ∠BOD = ∠AOC (vertically opposite)

$$180 = 140 + AOC$$
$$AOC = 40$$

∠AOC=40° ∠BOD=40° ∠AOD=140° ∠BOC=140°

Answer12
Given ∠ AOC : ∠AOD = 5:7
Let AOC= 5x and AOD = 7x

AOC+AOD=180

$$5x + 7x = 180$$
$$12x = 180$$
$$x = 15$$

So, ∠AOC =5x = 5 X 15= 75°
∠ AOD = 7x= 7 X 15 = 105°

As,
∠AOC= ∠BOD=75° [vertically opposite angles]
∠AOD= ∠BOC=105° [vertically opposite angles]

∠AOD=105° ∠AOC=75° ∠BOC=105° ∠BOD=75°

Answer13.
Given, ∠AOE=35° and ∠BOD=40°

∠BOD = ∠AOC = 40° [vertically opposite angles]
∠AOE = ∠FOB = 35°[vertically opposite angles]

Sum of all angles on formed on upper side of AOB at point O is 180°
So, ∠AOE + ∠EOD + ∠BOD = 180°
35° + ∠COF + 40° = 180°
∴ ∠EOD = 180° – 75° = 105°

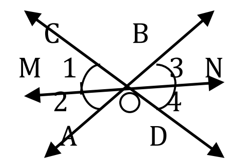
∠EOD = ∠COF = 105° [vertically opposite angles]

Answer14.
Given ∠BOC = 125°
∠BOC = y°= 125° [vertically opposite angles]

Sum of all angles on line DOC is 180°

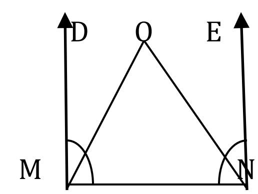
$\angle DOB\ (z°) + \angle BOC = 180$
$z° = 180 – 125 = 55°$
$z° = x° = 55°$ [vertically opposite angles]

Answer 15



Let the ray OM bisects $\angle AOC$ and ray ON be opposite to OM
Then, MON is a straight line
So, $\angle 1 = \angle 4$ [vertically opposite angles]
$\angle 3 = \angle 2$[vertically opposite angles]
$\angle 1 = \angle 2 \Rightarrow \angle 3 = \angle 4$ [Adjacent angles]

Answer16.



Given, $\angle$ DMN + ENM = 180°. OA and OB are bisectors of $\angle$ DMN $\angle$ ENM respectively.
$\therefore \angle DMO + \angle OMN = 1/2\ (\angle DMN)$.....(1)
$\Rightarrow \angle ENO + \angle ONM = 1/2\ (\angle ENM)$....(2)
$\Rightarrow \angle DMN + \angle ENM = 180°$
$\Rightarrow 2\ (\angle OMN) + 2\ (\angle ONM) = 180°$ [using (1) and (2)]
$\Rightarrow \angle OMN + \angle ONM = 90°$
In Δ MNO,
$\angle OMN + \angle ONM + \angle MN0 = 180°$ (Angle Sum property)
$\Rightarrow 90° + \angle MNO = 180°$
$\Rightarrow \angle MNO = 180° - 90°$
$\Rightarrow \angle MNO = 90°$
So, the bisectors of the two adjacent supplementary angles include a right angle.
Hence proved.