Important Questions - Lines and Angles

9th Standard CBSE

Mathematics

Reg.No. :

Time : 01:00:00 Hrs

Total Marks : 50

Section-A

1) The minimum number of points required to draw a line is   **1**

   (a) 1   (b) 2   (c) 3   (d) 4

2) An obtuse angle   **1**

   (a) measures between 0^0 and 90^0 (b) is greater than 90^0 but less than 180^0 (c) is exactly equal to 90^0

   (d) is exactly equal to 180^0

3) The complement of an angle m is: **1**

   (a) m   (b) 90^0+m   (c) 90^0-m   (d) mx90^0

4) An right angle   **1**

   (a) measures between 0^0 and 90^0 (b) is exactly equal to 90^0 (c) is greater than 90^0 but less than 180^0

   (d) is equal to 180^0

5) The compliment of (90^0-a^0) is   **1**

   (a) $-a^0$ (b) 90^0+a^0 (c) 90^0-a^0 (d) a^0

6) The angle which is equal to 8 times its compliment is: **1**

   (a) 80^0 (b) 72^0 (c) 90^0 (d) 88^0

7) In the given figure if AOB is a straight line, then $\angle BOC$ is   **1**

   (a) 80^0 (b) 70^0 (c) 60^0 (d) 20^0

8) If two parallel lines are cut by a transversal then which of the following is not true?   **1**

   (a) Corresponding angles are equal   (b) Alternate interior angles are equal

   (c) Interior angles of the same side of the transversal are supplementary

   (d) Interior angles on the same side of the transversal are complimentary

9) In a regular polygon of an sides the measure of each interior angle is   **1**

   (a) $\frac{360^0}{n}$ (b) $\frac{2n-4}{n}$ (c) n right angles   (d) 2n right angles

10) The angles of a traingle are in the ratio 5:3:7 the traingle is :   1

   (a) An acute angled triangle   (b) An obtuse-angled traingle   (c) A right traingle

   (d) An isosceles traingle

Section-B

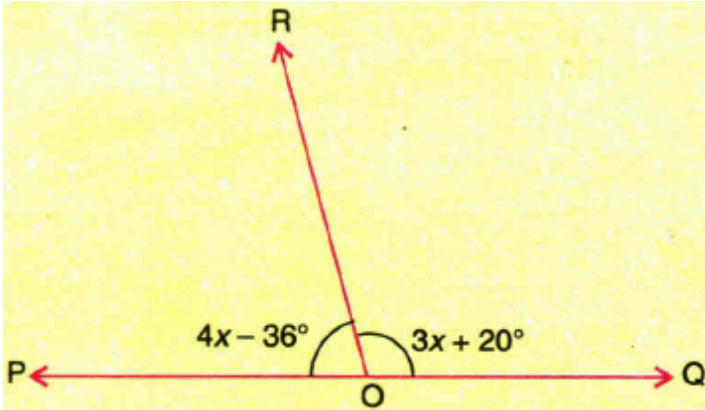11) Find the supplement of $\frac{4}{3}$ of right angle   2

12) If $(3x-58^0)$ and $(x+38^0)$ are supplementary angles,find x and the angles.   2
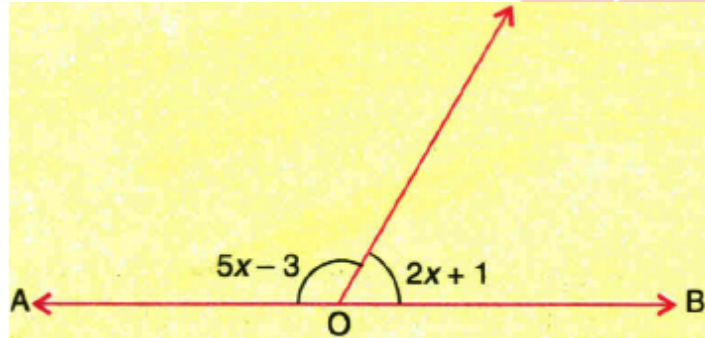
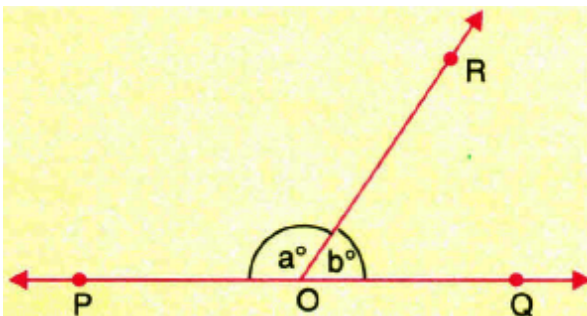13) (a) In the figure , what value of x will make POQ a straight line: 2

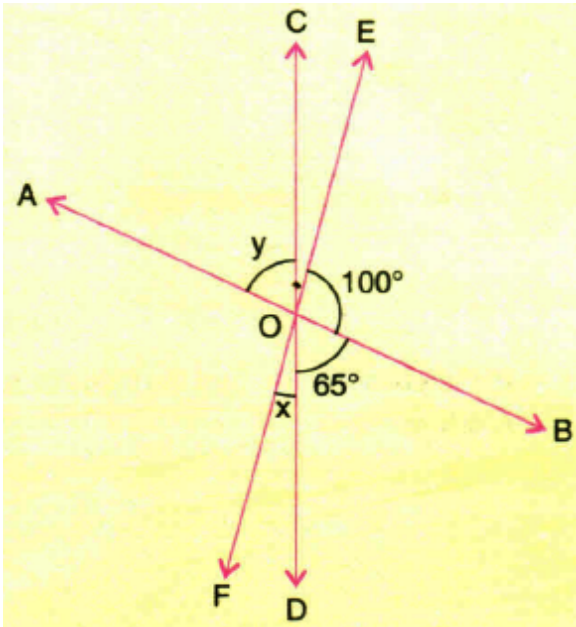(b)In the given figure find the value of x,If AOB is a line

14) In figure if $\angle$ POR and $\angle$QOR form a linear pair and a-b=80^0 then find the values of a and b   2

15) In the given figure lines AB ,CD and EF intersect at O Find x and y   **2**

16) In $\triangle$ ABC if $\angle A = (2Xx - 5)^0$, $\angle B = (5X + 5)^0$ $\angle C = (3Xx - 50)^0$ then find the values of x,$\angle$ A ,   **2**
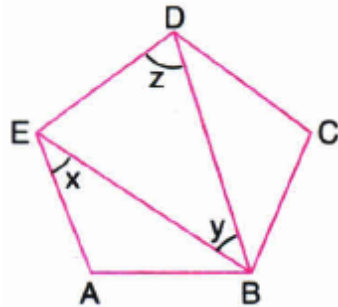
   $\angle B$ and $\angle C$

17) find the angles of a traingle PQR if $\angle p - \angle q = 45^0$ and $\angle Q - \angle R = 30^0$ **2**

18) ABCDE is a regular pentagon as shown in the given figure Find the values $\angle x \angle y \angle z$ **2**


19) It is given that $\angle$ XYZ=64^0 and XY produced to point P. Draw a figure from the given information If ray YQ   **2**

   bisects $\angle$ ZYP , Find $\angle$ ZYP find $\angle$XYQ and reflex $\angle$ QYP.

20) In Figure ,PQ and RS are two mirrors placed parallel to each other An incident ray AB strikes the mirror PQ at B   **2**

   the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD.Prove
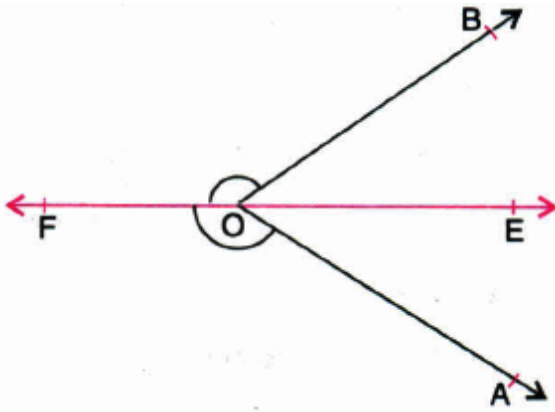
   that AB|| CD
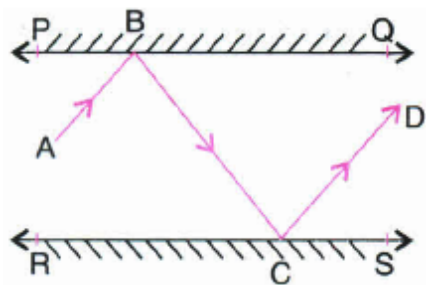
Section-C

21) Ray OE bisects ∠AOB and OF the ray opposite to OE Show that ∠FOB=∠FOA   **5**
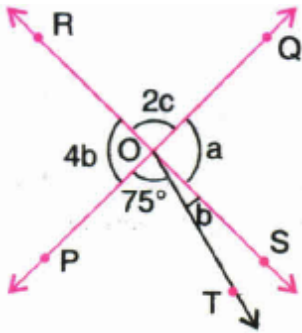

22) In the given figure , two straight lines PQ and RS intersect each other at O   **5**

If ∠POT =75^0 Find the values of a,b,c

23) In figure if x=y and a=b prove that r || n   **5**
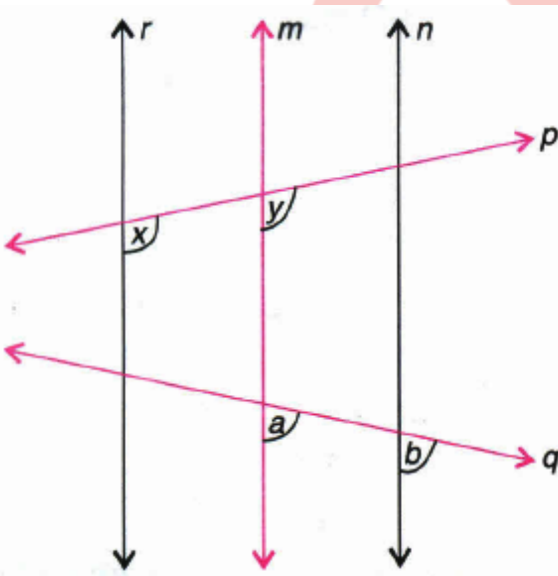
24) The side EF,FD and DE of a traingle DEF are produced in order forming three exterior angles DFP,EDQ and FER   **5**

respectively,Prove that

$$\Rightarrow \angle DFP + \angle EDQ + \angle FER = 360^0$$

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Section-A

1) (b) 2   **1**

2) (b) is greater than 90^0 but less than 180^0 **1**

3) (c) 90^0-m   **1**

4) (b) is exactly equal to 90^0 **1**

5) (d) a^0 **1**

6) (a) 80^0 **1**

7) (a) 80^0 **1**

8) (d) Interior angles on the same side of the transversal are complimentary   **1**

9) (b) $\frac{2n-4}{n}$ **1**

10) (a) An acute angled triangle   **1**

Section-B

11) $\frac{4}{3}$ of a right angle=$\frac{4}{3} \times 90^o = 120^o$ **2**
 (Sum of supplementary angles is 180°)
 Supplement of 120°=180°-120°=60°

12) x=50, 92^0 and 88^0 **2**

13) (a) 28   (b) 26   **2**

14) a+b=180° (Linear pair)   **2**
 a-b=80° (Given)
 Adding, 2a=260°
 a=130°
 and b=180°-a=180°-130°
 =50°

15) x=15^0,y=65^0 **2**

16) 13; $21^0, 70^0, 89^0$ **2**

17) $100^0, 55^0, 25^0$ **2**

18) $36^0, 36^0, 72^0$ **2**

19) ∴ Ray YZ stands on line PX

∴ ∠XYZ +∠ QYP

| Linear pair Axiom
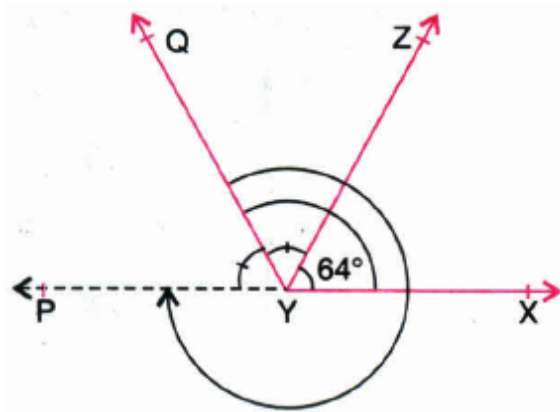
$$\Rightarrow 64^0 + \angle ZYP = 180^0$$

|∴ Ray YQ bisects ∠ ZYP

∴ ∠ PYQ=∠ZYQ== $\frac{1}{2}$

= $\frac{1}{2}(116^0)$ |Using (1) =58^0

∴ Reflex ∠QYP=360^0-58^0=302^0

∴ The sum of all angles round a point is equal to 360^0

Again, ∠ XYQ=∠XYZ+∠ZYQ

$\qquad$ =$64^0 + 58^0$

|∵ ∠XYZ=64^0 (Given) and ∠ ZYQ=58^0

=122^0
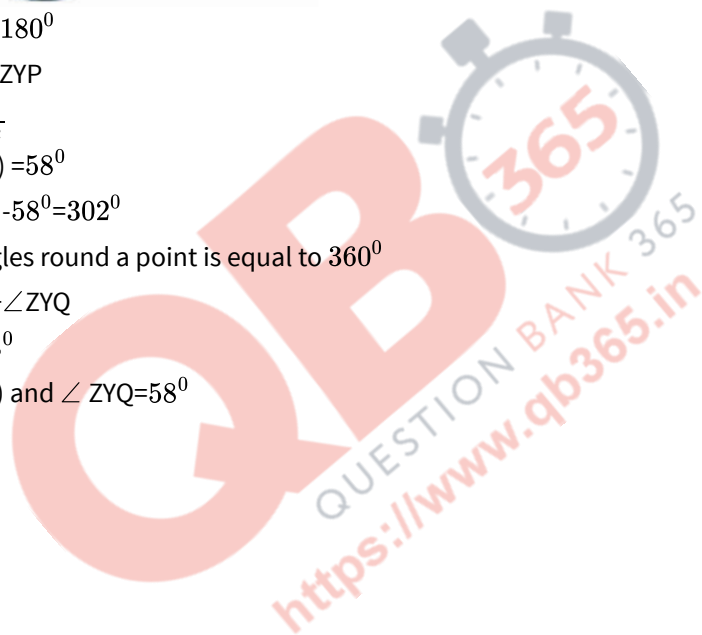
20) Construction :draw ray BL $\perp$ PQ and ray CM $\perp$ RS.
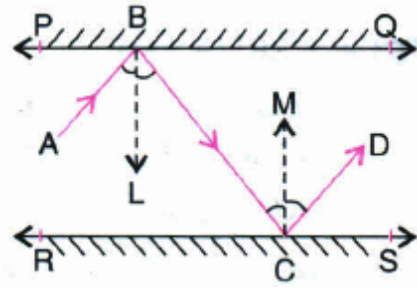
BL $\perp$ PQ,CM $\perp$ RS and PQ || RS BL||CM

$\angle$ LBC=$\angle$ MCB

|Alternate Interior Angles

$\angle$ABL=$\angle$LBC

Angle of incidence= Angle of reflection

$\angle$MCB=$\angle$MCD

Angle of incidence= Angle of reflection

From (1),(2) and (3) we get

$\angle$ABL =$\angle$MCD

Adding (1) and (4) , we get

$\angle$ LBC+$\angle$ABL =$\angle$MCB+$\angle$MCD

$\Rightarrow$ $\angle$ABC=$\angle$BCD

But these form a pair of equal alternate interior angles

So AB || CD.

Section-C

21) $\angle$FOB+$\angle$BOE=180^0 ...(1)

| Linear pair Axiom

$\angle$FOA+$\angle$AOE=180^0 .. (2)

| Linear Pair Axiom

From (1) and (2)

$\angle$FOB+$\angle$BOE= $\angle$ FOA+$\angle$AOE ....(3)

But $\angle$BOE=$\angle$AOE

|$\therefore$ From (3)

$\Rightarrow$ $\angle$FOB=$\angle$FOA

22) $\therefore$ ROS is a line

$\quad \therefore 4b + 75^0 + b = 180^0$

$\quad \Rightarrow 5b = 180^0 - 75^0 = 105^0$

$\quad \Rightarrow b = \frac{105^0}{5} = 21^0$

$\quad 2c = 75^0 + b$

$\quad$|Vertically opposite angles

$\quad \Rightarrow 2c = 75^0 + 21^0$

$\quad \Rightarrow 2c = 96^0$

$\quad \Rightarrow c = \frac{96^0}{2} = 48^0$

$\quad a = 4b$

$\quad$|Vertically opposite angkes

$\quad \Rightarrow a = 4 X 21^0 = 84^0$

$\quad$Thus $a = 84^0, b = 21^0, c = 48^0$

5

23) r and m are two lines and a traversal p intersects them such that x=y

But these angles form a pair of equal corresponding angles

$\therefore$ r $\parallel$ m

Again m and n are two lines and a traversal q intersects them such that a=b

But these angles form a pair of equal corresponding angles

$\therefore$ m $\parallel$ n

From (1) and (2) we have r$\parallel$n.

5

24) $\angle DFP + \angle D + \angle E$

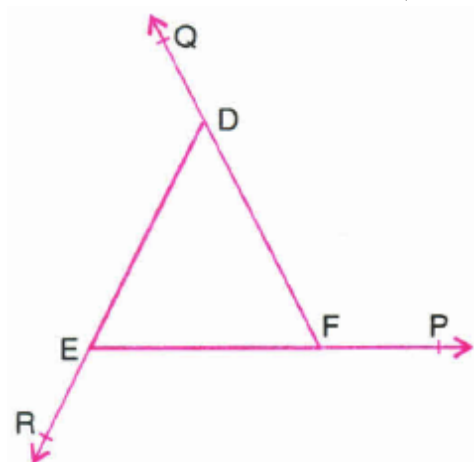$\quad$|Exterior Angle Theorem

$\quad \angle EDQ = \angle E + \angle F$

$\quad$| Exterior Angle Theoram

$\quad \angle FER = \angle F + \angle D$

$\quad$|Exterior Angle Theoram

$\quad$Adding (1),(2) and (3) we get

$\quad \angle DFP + \angle EDQ + \angle FER = 2(\angle D + \angle E + \angle F)$

$\qquad\qquad\qquad\qquad\qquad$ But

5

$\angle D + \angle E + \angle F = 180^0$

|The sum of three angles of a traingle is 180^0

$\therefore \angle DFP + \angle EDQ + \angle FER$

=$2(180^0) = 360^0$