# $9^{th}$ CBSE
## PT – 6M – Solution
### Section : A

24th Dec.'18

1) $\angle ABC = 90^\circ$.

2) circumcircles

3) $\angle ABC = \frac{1}{2}(\text{Reflex } \angle AOC)$

$= \frac{1}{2}(360^\circ - 130^\circ)$

$\angle ABC = 115^\circ$

4) 10

5) 25.5

6) Range $= 32 - 6 = 26$

### Section : B

7) Angle made by $\widehat{AB}$ at centre

$= \angle AOB = 2\angle ACB = 2\angle ADB.$

$\angle CPB = 180^\circ - 110^\circ = 70^\circ$ ∵ linear angles

In $\triangle CPB$,

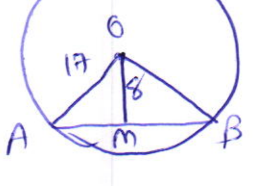
$\angle PBC + \angle BPC + \angle BCP = 180^\circ$.

∴ $\angle PCB = 180^\circ - 25^\circ - 70^\circ$

$\angle PCB = \angle ACB = 85^\circ$.

By (i) $\angle ADB = 85^\circ$. ∵ Angles in same segment (by (i))

8)




In right $\triangle AMB$,

$OA^2 = OM^2 + AM^2$

$AM^2 = 17^2 - 8^2$

$= 289 - 64$

$AM^2 = 225$

∴ $AM = 15$

As we know that $\perp^{ar}$ of a chord from the centre of circle, bisect the chord.

$\therefore$ length of chord $= 2AM = AB = 2(15)$ cm.

$= 30$ cm.

## Section : C

9)

| C.I. | Tally marks | Frequency |
|---|---|---|
| 6-9 | $\cancel{||||}$ | 5 |
| 9-12 | \|\|\|\| | 4 |
| 12-15 | \|\|\|\| | 4 |
| 15-18 | $\cancel{||||}$ \|\| | 7 |
| 18-21 | \|\|\| | 3 |
| 21-24 | $\cancel{||||}$ \|\| | 7 |
| | | Total = 30 |

10) Since, M & N are mid-points of AB & CD.

$\therefore \angle OMB = \angle OND = 90^\circ$.

$\Rightarrow \angle OME = \angle ONE = 90^\circ$ —(i)

→ equal chords of circle are equidistant from centre.

$\therefore OM = ON$. —(ii)

→ In $\Delta OME$ & $ONE$ we have,

$OM = ON$ ∵ by (ii)

$\angle OME = \angle ONE$ ∵ by (i)

$OE = OE$ ∵ common side

$\therefore \Delta OME \cong \Delta ONE$ ∵ RHS congruence criterion

$\therefore ME = NE$ ∵ CPCT

In $\square OMEN$, $OM = ON$, $ME = NE$

& $\angle OME = \angle ONE = 90^\circ$.

$\therefore \square OMEN$ is a square.

11) $\cdot\ \angle 3 = \angle 4$ ∵ | Angles in a same segment formed by $\overset{\frown}{AB}$.

$\therefore \angle Z = 2\angle 3.$ ∵ | Angle made at centre by an arc is double the angle in its alt. segment.

$\Rightarrow \angle Z = \cancel{2}\angle 3 + \angle 4.$

$\rightarrow \angle 1 + \angle 3 = \angle y$ ∵ | exterior angle thm.

also, $\angle y = \angle 2 + \angle 4.$

$\rightarrow \angle Z = \angle y - \angle 1 + \angle 4.$

$\cancel{= \angle y - \angle 1 + \angle 4}$

$= \angle y + \angle x$ ∵ | $\cdot \angle x + \angle 1 = \angle 4.$ ∵ | ext. angle thm.

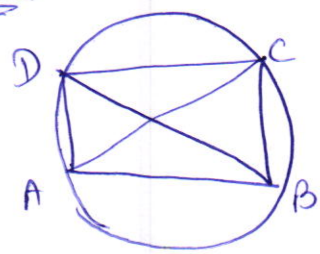
$\therefore \boxed{\angle x + \angle y = \angle Z.}$

12)

| C.I. | freq. |
|---|---|
| 0-10 | 17 |
| 10-20 | 5 |
| 20-30 | 7 |
| 30-40 | 8 |
| 40-50 | 13 |
| 50-60 | 10 |
| | Total 60 |

## Section : D

13)




Given : A cyclic quadrilateral ABCD in which . AB || DC.

→ To prove : (i) AD = BC

(ii) AC = BD.

Proof :- Since, □ABCD is cyclic quadrilateral,

$\angle B + \angle D = 180°$ —— (i)

Since, AB || DC & BC is a transversal

$\angle ABC + \angle BCD = 180°$ ∵ consecutive angles

$\angle B + \angle C = 180°$ —— (ii)

→ from (i) & (ii),

$\angle C = \angle D$. —— (iii)

→ In $\Delta ADC$ & $\Delta BCD$,

$\angle ADC = \angle BCD$ ∵ from (iii)

$DC = CD$ ∵ common

$\angle DAC = \angle CBD$ ∵ Angles in same segment of CD.

∴ By AAS criterion of congruence,

$\Delta ADC \cong \Delta BCD$

∴ $AD = BC$ & $AC = BD$. ∵ CPCT.

~~14~~)