

7. LINE AND ANGLES ①

Class: VII, MATHEMATICS

INTEGRATED. SOLUTIONS

TEACHING TASK

IEE MAINS LEVEL

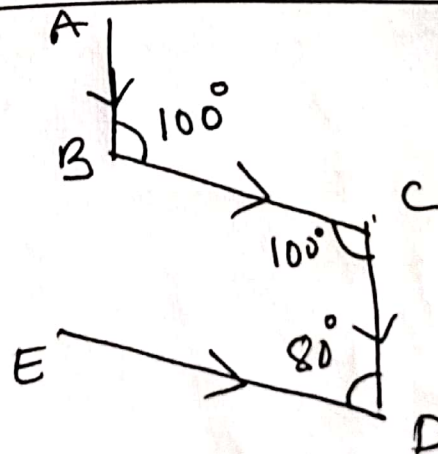
01. $x = 90^\circ - x \Rightarrow x = 45^\circ$ Ans: A

02. $a + 25^\circ = 90^\circ \Rightarrow a = 65^\circ$
 $b + 65^\circ = 90^\circ \Rightarrow b = 25^\circ$ Ans: A

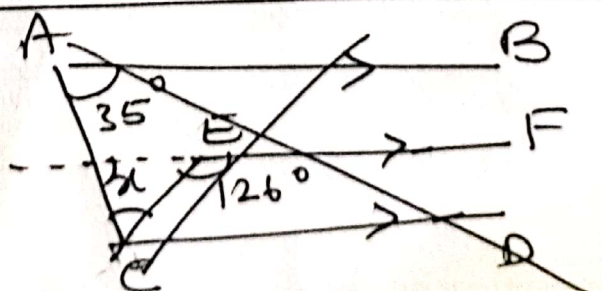
03. $\angle ABC = 156^\circ - 68^\circ = 88^\circ$ (acute angle) Ans: A

04. $x : \beta = 4 : 5$, $x + \beta = 180^\circ$
 $x = \frac{4}{9} \times 180^\circ = 80^\circ \therefore \beta = 100^\circ$ Ans: C

05. $\therefore x = 100^\circ$



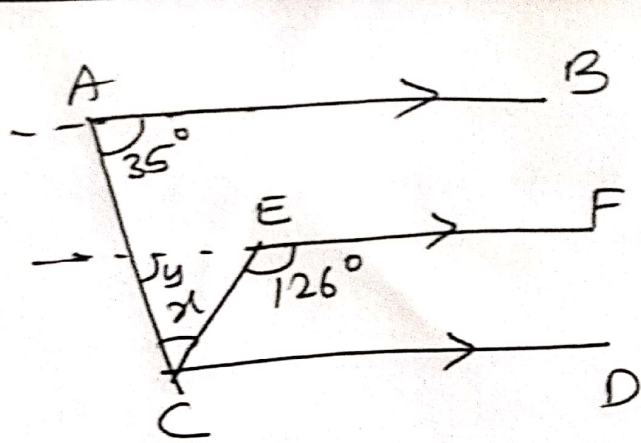
Ans: B



06 Clearly $y = 35^\circ$
 $x + y = 126^\circ$

$\Rightarrow x + 35^\circ = 126^\circ$

$\Rightarrow x = 91^\circ$



Ans: D

07 $x + 36^\circ = 180^\circ \Rightarrow x = 144^\circ$

Ans: D

08 $L1 = L3 = 75^\circ$

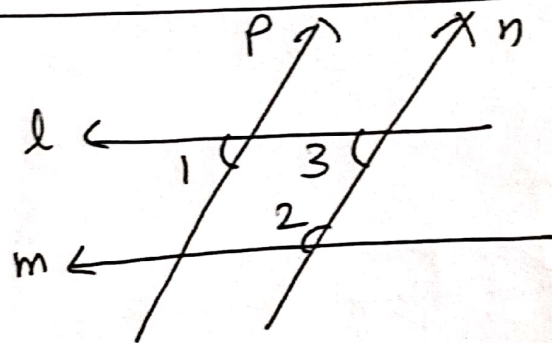
$L2 + L3 = 180^\circ$

$\Rightarrow L2 + 75^\circ = 180^\circ$

$\Rightarrow L2 = 105^\circ$

option A: $L2 = L1 + \frac{1}{3} \times 90^\circ$

$105^\circ = 75^\circ + 30^\circ = 105^\circ \checkmark$ Ans: A



09

$\frac{PL}{LQ} = \frac{PM}{MR}$

$\Rightarrow \frac{3}{5} = \frac{\cancel{PM} x}{5.6 - x}$

$\Rightarrow 16.8 - 3x = 5x$

$\Rightarrow 8x = 16.8$

$\Rightarrow x = 2.1 \text{ cm}$

$\therefore PM = 2.1 \text{ cm}$

let $PM = x$

$\therefore MR = PR - PM$

$= PR - x$

Ans C

10.

$$\frac{EG}{GI} = \frac{FI}{IJ}$$

$$\Rightarrow \frac{2}{4} = \frac{3}{x}$$

$$\Rightarrow x = 6 \Rightarrow IJ = 6 \text{ cm}$$

Ans: D

(3)

JEE ADVANCED

11.

$360^\circ \Rightarrow 2 \text{ straight angles} \Rightarrow 4 \text{ right angles}$

Ans: A, B

12

$$\angle ABC = 60^\circ, \angle PQR = 90^\circ$$

Complement of 60° is 30°

Supplement of 90° is 90°

~~Ans: A~~

Ans: B, D

13

Statement I:

Let the angle be x° , its supplement $180^\circ - x$

Given $x^\circ + 30^\circ = 2(180^\circ - x)$

$$\Rightarrow x = 110^\circ, \text{ Supplement} = 70^\circ$$

(True)

Statement II:

Conceptual (False)

Ans: C

14.

Statement I:

$$x = 50^\circ, y = 150^\circ, z = 160^\circ$$

$$\therefore x + y + z = 50^\circ + 150^\circ + 160^\circ = 360^\circ \text{ (True)}$$

Statement II:

Conceptual (True)

Ans: A

15

$$a - b = 137^\circ - 59^\circ = 78^\circ \text{ (acute angle)}$$

Ans: B

16 $b + c = 59^\circ + 37^\circ = 96^\circ$ (obtuse angle) Ans: A (4)

17 We have $\frac{AD}{AB} = \frac{AE}{AC}$ (or) $\frac{AB}{BD} = \frac{AC}{EC}$
 $\Rightarrow \frac{AD}{12} =$ $\Rightarrow \frac{12}{BD} = \frac{16}{4}$

$\Rightarrow BD = 3$
 $\therefore AD = 12 - 3 = 9 \text{ cm}$

Ans: 9

18 $4 \times 90^\circ = 360^\circ$

Ans: 4

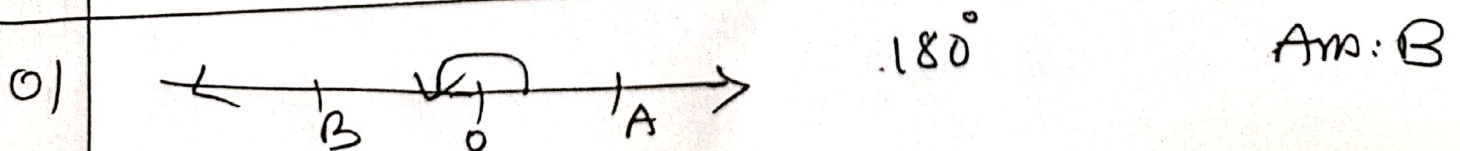
- 19 a) Complement angle of x (y)
 b) straight angle (s)
 c) Complete angle (p)
 d) Supplement of x (q)

Ans: y, s, p, q

- 20 a) An intercept AB on t (s)
 b) ~~Conceptual~~ (p)
 c) Conceptual (q)
 d) Conceptual (r)

Ans: s, p, q, r

LEARNERS TASK (CUB'S)



02.	Conceptual	Ans: B
03	Conceptual	Ans: B
04	Conceptual	Ans: A
05	181°, 279°	Ans: C
06	Conceptual	Ans: A
07	Conceptual	Ans: D
08	Conceptual	Ans: A
09	Conceptual	Ans: D
10	Conceptual	Ans: A

JEE MAINS LEVEL

01	$\alpha : \beta = 7 : 8$, $\alpha + \beta = 90^\circ$ $\alpha = \frac{7}{15} \times 90^\circ = 42^\circ$, $\therefore \beta = 48^\circ$	Ans: C
02	$x + x + 2x = 90^\circ$ $\Rightarrow x = 35^\circ$ and 55°	Ans: D
03	$x + 2x - 21 = 180^\circ$ $\Rightarrow x = 67^\circ$	Ans: B
04	$x : y = 4 : 11$, $x + y = 180^\circ$ $x = \frac{4}{15} \times 180^\circ = 48^\circ$ $\therefore y = 132^\circ$ $x = a$, $y = b$	Ans: C

05

$$x = 35^\circ, y = 140^\circ, z = 105^\circ$$

$$x + y + z = 35^\circ + 140^\circ + 105^\circ = 280^\circ$$

Ans: D

(6)

06

$$x - (90^\circ - x) = 10^\circ$$

$$\Rightarrow x = 50^\circ \therefore \text{another angle} = 40^\circ$$

Ans: C

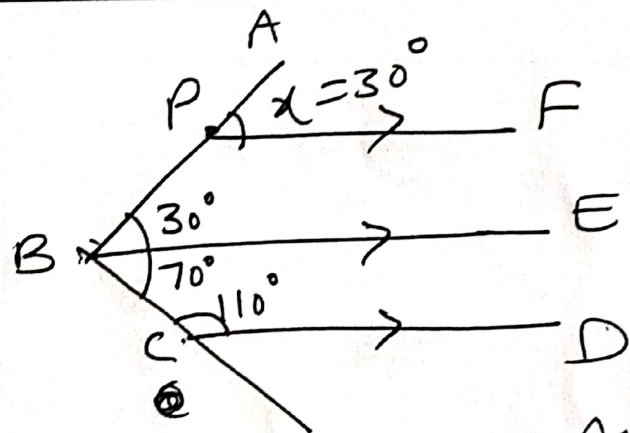
07

$$3x + 40^\circ + x - 20^\circ = 180^\circ$$

$$\Rightarrow x = 40^\circ$$

Ans: C

08

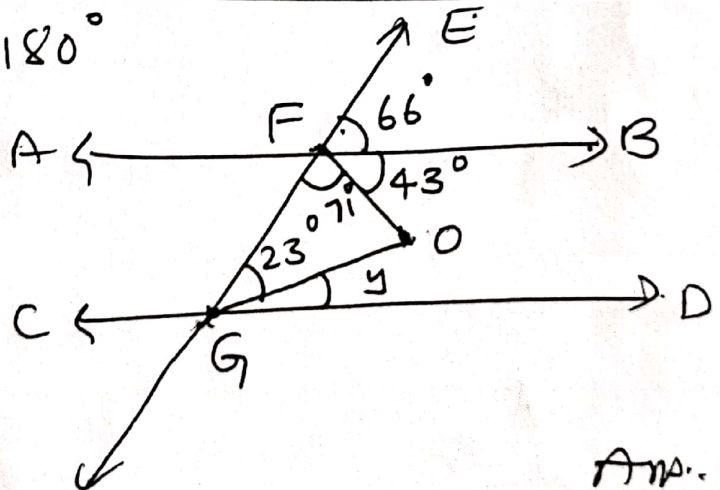


Ans: A

09

$$71^\circ + 43^\circ + 23^\circ + y = 180^\circ$$

$$\Rightarrow y = 43^\circ$$



Ans: B

10

From figure

$$y + m = 180^\circ$$

$$y + z = 180^\circ$$

$$y : z = 4 : 5$$

$$z = \frac{5}{9} \times 180^\circ = 100^\circ$$

$$\therefore \angle z = \angle m = \angle x = 100^\circ$$

Ans: A

11. 180° or $2 \times 90^\circ$

Ans. A, C

12. Statement I:

From figure

$$\angle 1 = \angle 5 = \angle 7 = 70^\circ$$

$$\therefore \angle 6 + \angle 7 = 180^\circ$$

$$\Rightarrow \angle 6 + 70^\circ = 180^\circ \Rightarrow \angle 6 = 110^\circ \quad \text{Ans.}$$

(True)

Statement II: Conceptual (True)

Ans. A

13. From figure

$$\frac{AB}{AQ} = \frac{DC}{DP}$$

$$\Rightarrow \frac{27}{6} = \frac{30}{DP}$$

$$\Rightarrow DP = \frac{20}{3} \text{ cm}$$

$$\frac{AB}{QS} = \frac{DC}{PR}$$

$$\Rightarrow \frac{27}{9} = \frac{30}{PR}$$

$$\Rightarrow PR = 10 \text{ cm}$$

$$\therefore DP + PR = \frac{20}{3} + 10 = \frac{50}{3} \text{ cm} \quad \text{Ans. AD}$$

14. 0°

Ans: 0°

15. a) $50^\circ (x)$

b) $120^\circ (p)$

c) $x + t = 50^\circ + 120^\circ = 170^\circ (s)$

d) $z - y = 130^\circ - 120^\circ = 10^\circ (t)$

