10. LINES AND ANGLES

Class: VII, MATHEMATICS

FOUNDATION+ SOLUTIONS

2025|26

TEACHING TASK

JEE MAINS LEVEL

01. $\alpha+\beta=180^\circ \rightarrow$ Supplementary — Ans: B

02 $\alpha, \beta \rightarrow$ Complementary Angle

$\Rightarrow \alpha+\beta=90^\circ$ Given $\alpha:\beta=7:8$

$\therefore \alpha=\frac{7}{15}\times 90=42^\circ$

$\beta=90^\circ-42^\circ=48^\circ$ — Ans: C

03 $\alpha:\beta=4:5$

$\alpha=\frac{4}{9}\times 180^\circ=80^\circ$

$\beta=180^\circ-80^\circ=100^\circ$ — Ans: C

04 $x^\circ+2x-21^\circ=180^\circ$

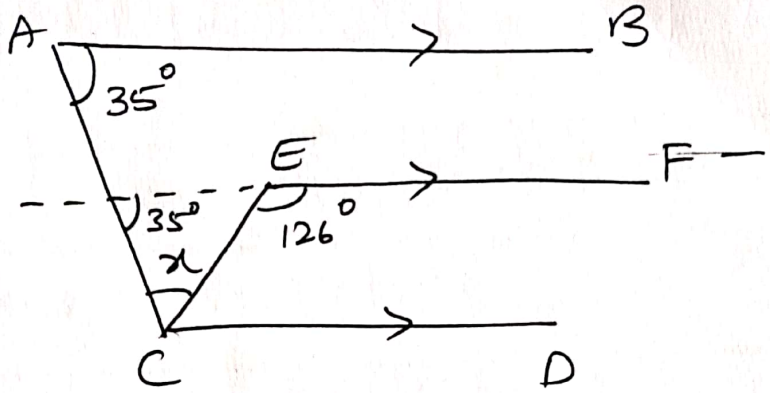
$\Rightarrow 3x=201$

$\Rightarrow x=67^\circ$ — Ans: B

05 $x=35^\circ$, $y=4\times 35^\circ=140^\circ$, $z=105^\circ$

$x+y+z=35^\circ+140^\circ+105^\circ=280^\circ$ — Ans: D

06



(2)

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

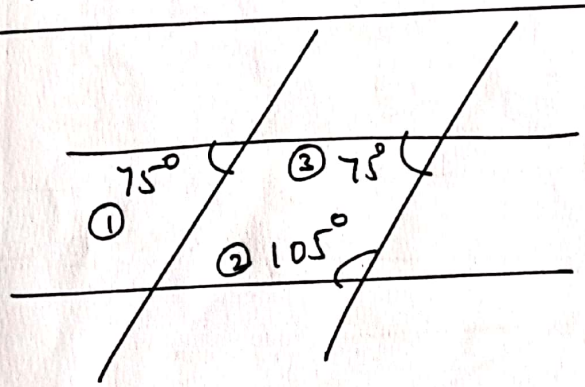
$\Rightarrow x = 91^\circ$

Ans: D

07 $180^\circ - 36^\circ = 144^\circ$

Ans: D

08



opt: A $\rightarrow$ $105^\circ = 75^\circ + \frac{1}{3} \times 90^\circ = 75^\circ + 30^\circ = 105^\circ$ (True)

Ans: A

09

$\frac{PL}{LQ} = \frac{3}{5}$

$\Rightarrow \frac{LQ}{PL} = \frac{5}{3}$

$\Rightarrow \frac{LQ}{PL} + 1 = \frac{5}{3} + 1$

$= \frac{PQ}{PL} = \frac{8}{3}$

we have

$\frac{PQ}{PL} = \frac{PR}{PM}$

$\Rightarrow \frac{8}{3} = \frac{5.6}{PM}$

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

Ans: C

10 $\frac{2}{4} = \frac{3}{x} \Rightarrow x = 6\,cm$ Ans. D (3)

JEE ADVANCED LEVEL

01. Conceptual Ans. C, D

02 $\angle ABC = \frac{360^\circ}{6} = 60^\circ$

$\angle PQR = \frac{360^\circ}{4} = 90^\circ$

~~$\angle BRL = 150^\circ$~~

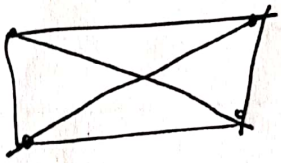
The complement of $60^\circ \rightarrow 30^\circ$

The supplement of $90^\circ \rightarrow 90^\circ$

Ans:

Ans: B, D

03 Statement I: $= \frac{n(n-1)}{2} = \frac{4 \times 3}{2} = 6$



No. of line segments $= 6$ (False)

Statement II: Conceptual (True)

Ans. D

04 Statement I:

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

$\therefore x + y + z = 360^\circ$ (True)

Statement II: Conceptual (True)

Ans. A

05 Assertion: Conceptual (False)

Reason: Conceptual (True)

Ans: D

06 Assertion: Conceptual (True) (4)
Reason: Conceptual (True) Ans: A

07 $a-b = 137^\circ - 59^\circ$
$= 78^\circ \rightarrow$ An acute angle
Ans: B

08 $a+b = 137^\circ + 59^\circ$
$= 196^\circ \rightarrow$ Obtuse Angle
Ans: A

09 $\angle BCD = 30^\circ + 40^\circ = 70^\circ$
Ans: C

10 $\angle BCA + \angle BCD = 110^\circ + 70^\circ = 180^\circ$
Ans: D

11 $15000\ mm = 15000 \times 1\ mm$
$= 15000 \times \frac{1}{10000}\ mt$
$= 15\ mt$
Ans: 15

12 $360^\circ = 4 \times 90^\circ$
Ans: 4

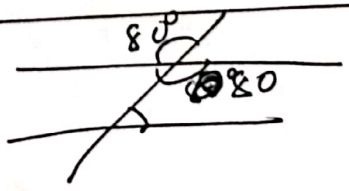
13 a) $89^\circ, 70^\circ$ (s, t)
b) 91° (p)
c) 181° (q)
d) 90° (γ)
Ans: (s, t), p, q, γ

14 a) Conceptual (s)
b) Conceptual (p)
c) Conceptual (q)
d) Conceptual (γ)
Ans: s, p, q, γ

LEARNERS TASK (CUQ's)

01	Conceptual	Ans: C
02	Conceptual	Ans: C
03	Conceptual	Ans: A
04	No. of vertices $= 5 \rightarrow n$ No. of line segments $= \frac{n(n-1)}{2}$ $= \frac{5 \times 4}{2} = 10$	Ans: C
05	Conceptual	Ans: A
06	Conceptual	Ans: A
07	Conceptual	Ans: D
08	Conceptual	Ans: A
09	Conceptual	Ans: D
10	Conceptual	Ans: A

JEE MAINS LEVEL

01	$(x+10^\circ) + (x+40^\circ) = 90^\circ$ $\Rightarrow x = 20^\circ$ $\therefore x+10^\circ = 20^\circ + 10^\circ = 30^\circ,$ $x+40^\circ = 20^\circ + 40^\circ = 60^\circ$	Ans: D
02	80° 	Ans: A

03 Conceptual ⑥ Ans: B

04 Conceptual Ans: A

05 Conceptual Ans: A

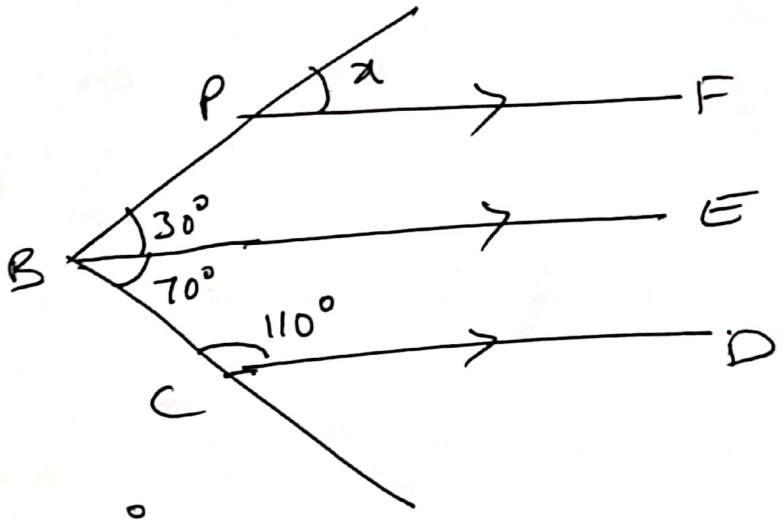
06 $50^\circ, 40^\circ$ Ans: C

07 $3\angle x + 40^\circ + \angle x - 20^\circ = 180^\circ$

$\Rightarrow 4x^\circ = 180^\circ - 20^\circ$

$\Rightarrow x = 40^\circ$ Ans: C

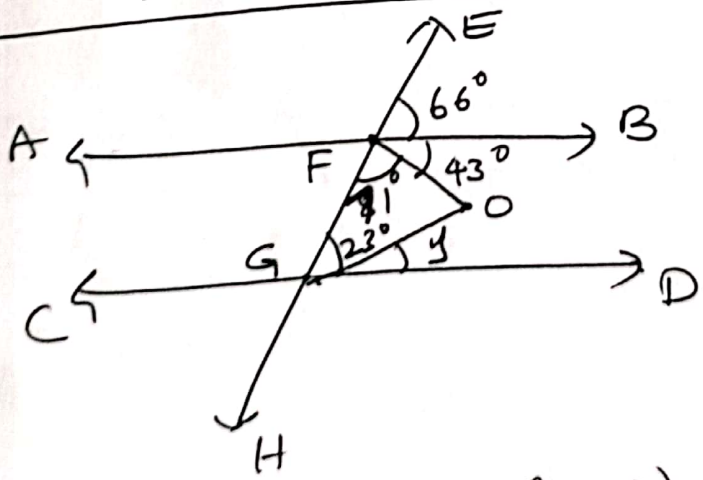
08



Ans: A

$\therefore x = 30^\circ$

09



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

$y = 43^\circ$

Ans: B

10. form figure

$y + m = 180^\circ$ (linear pair)

$y + z = 180^\circ$ Given $y : z = 4 : 5$

$\therefore y = \frac{4}{9} \times 180^\circ = 80^\circ$

$\therefore x + y = 180^\circ$

$x + 80^\circ = 180^\circ \Rightarrow x = 100^\circ$ Ans. A

ADVANCED LEVEL

01 Conceptual Ans: C D

02 $2 \times 90^\circ$ or 180° Ans. A, C

03 Statement I:

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

$\therefore x + y + z = 360^\circ$ (True)

Statement II: $4 \times 90^\circ = 360^\circ$ (True) Ans. A

04 Statement I:

$L1 = L3 = 80^\circ$

$L3 + L6 = 180^\circ$

$80^\circ + L6 = 180^\circ$

$L6 = 100^\circ$ (True)

Statement II: Conceptual (True)

Ans. A

05 Assertion: Conceptual (True)
Reason: Conceptual (True)
Ans. A

06 Assertion: Conceptual (True)
Reason: Conceptual (True)
Ans. A

07 $\frac{4}{7} AB = 19.6$

$AB = 19.6 \times \frac{7}{4}$

$AB = 34.3$

$BC = 37.9 - 12.4$

$= 25.5$

$CD = 30.1 + 4.6$

$= 34.7$

$DE = 2.7 \times 8$

$= 21.6$

Now, $AB + BC + CD - x = DE$

$\Rightarrow 34.3 + 25.5 + 34.7 - x = 21.6$

$\Rightarrow x = 72.9$

Ans: A

08 $AB + BC + CD + DE$

$= 34.3 + 25.5 + 34.7 + 21.6$

$= 116.1$

Ans: —

09 From figure

$DP : PR : RC = 6 : 9 : 12 = 2 : 3 : 4$

$DP = \frac{2}{9} \times 30 = \frac{20}{3}$

(9)

$PR = \frac{3}{9} \times 30 = 10\ cm$

Now, $DP + PR = \frac{20}{3} + 10 = \frac{50}{3}$

Ans. A

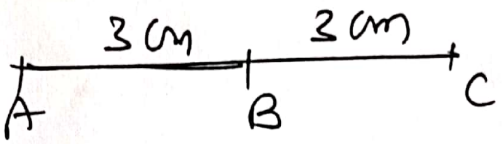
10. $PR = 10\ cm$

$RC = \frac{4}{9} \times 30 = \frac{40}{3}$

Now, $PR + RC = 10 + \frac{40}{3} = \frac{70}{3} = 23\frac{1}{3}$

Ans. B

11



$\therefore AC = 6\ cm$ Ans: 6

12 0° Ans: 0

13 a) complement of x° (r)
b) straight angle (s)
c) complete angle (p)
d) suplement of x° (q)

Ans: r, s, p, q

14 a) $a^\circ = 50^\circ$ (r)
b) $y^\circ = 120^\circ$ (p)
c) $x + t = 50 + 120^\circ = 170^\circ$ (s)
d) $z - y = 130^\circ - 120^\circ = 10^\circ$ (t)

Ans: r, p, s, t

$\Rightarrow$ THE END $\Leftarrow$