Sdt 10/4/25

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1) D - 1st

2) D

3) C

4) B

5) C

6) D

7) A

8) b

9) A

10) D

11) B

12 D

13 A

14 A

15 D

16 d

17 d

18 C

19 A

20 A

21 C, E, G, I, B

22 b Euclid's axiom : Opposite angles are parallel to each other and equal to eachothers

23 i 4

23 ii August

24 $\frac{1}{7+3\sqrt{2}}$

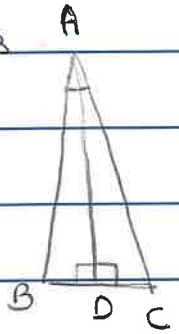
$= \frac{1}{10\sqrt{2}}$

$= \frac{1}{10}$

25 Given,

The bisector AD of $\angle A$ is perpendicular to side BC

To prove: AB = CA and $\triangle ABC$ is isoceles



Proof: $\angle A$ (common)

$\angle A = \angle D$ (Parallel)

D is mid point of BC

$\angle A$ is common ~~form~~ for BAC

BD = DC (D is common)

So AB || AC (As parallel ~~opp ang~~ opposite angles)

26 $ax^3 + 3x^2 - 3 = R_1 = 0$

$2x^3 - 5x + a = R_2 = 0$

$a(4)^3 + 3(4)^2 - 3 = 0$

$a(12) + 8 - 3 = 0$

$a(12) + 5 = 0$

$a(12) = -5$

$a = \frac{-5}{12}$

27 Given,

line l is a bisector of angle $\angle A$ and B is any point and BP & BQ are perpendiculars from B to the arms of $\angle A$

To prove: i) $\triangle APB \cong \triangle AQB$

ii) $BP = BQ$

Proof: B is common for $\angle AQB$ & $\angle APB$

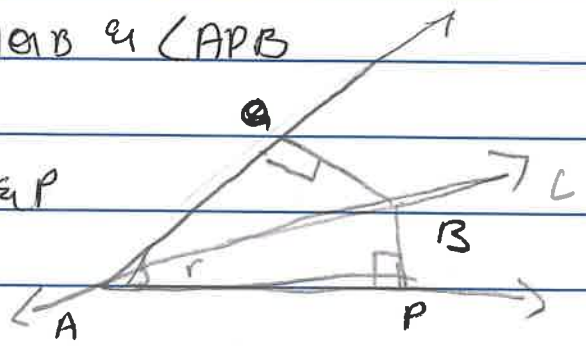
l is midpoint

B is midpoint for QP

$\therefore \triangle APB \cong \triangle AQB$

$BP = BQ$ (B common)

B is the midpoint $\therefore BP = BQ$



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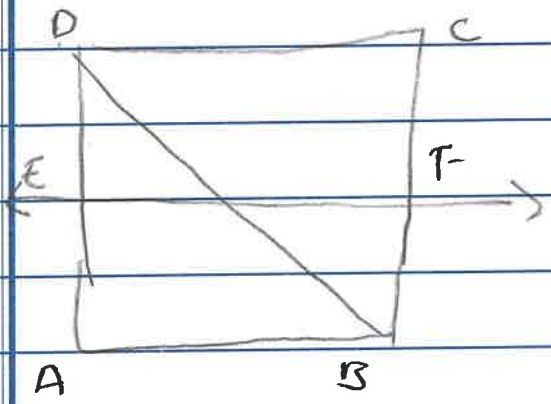
28 b Given,

ABCD is a trapezium in which AB ∥ DC, BD is a diagonal and E is the midpoint

Prove: F is midpoint of BC



F is common for C, D

E is common for D & A

E & F are parallel

D & D are opposite angles
↓
vertically.

C; A are vertically opposite angles

BC are vertically opposite and F is the middle point of BC

∴ F is the midpoint of BC

29) ~~Done in graph paper !!~~

Age (in years)	Number of children
1 - 2	5
2 - 3	3
3 - 5	6
5 - 7	12
7 - 10	9
10 - 13	4
13 - 17	

30 b) Given, Two congruent circles intersect each other at point A & B. Through any line segment, PAQ is drawn & P & Q lie on the two circles

Prove: $BP = BQ$

Proof:- B is parallel to A

and P & Q are vertically opposite

B is the midpoint P & Q

$\therefore BP = BQ$

31) Base diameter = 14m, 5m wide

$h = 24$

Rs = 25 per metre

$14 \times 5 \times 2 \times 25 = ₹17500$

32a) $x = \dfrac{\sqrt{p+q} + \sqrt{p-q}}{\sqrt{p+q} - \sqrt{p-q}}$

$\dfrac{(p+q)^2 + (\sqrt{p-q})^2}{(p+q)^2 + (p-q)^2}$

$= q^2 - 2px + q = 0$

33) Given,

i) ABC is a right angle triangle at C, M is the midpoint of Hypotenous AB. C ~~such~~ is joined to M

Produced to a point D such that DM = CM. Point D is joined to M and produced at a point D, such that DM = CM, Point D is joined to point B

Prove :- i) $\triangle AMC \cong \triangle BMD$

ii) $\angle DBC$ is a right angle

iii) $\triangle DBC \cong \triangle ACB$

Angle $\angle H$ is vertically opposite to angle $\angle D$

$\angle e$ is vertically opposite to angle $\angle B$

M is the midPoint (common)

$\therefore \triangle AMC \cong \triangle BMD$ (vertically opposite angles)

~~M is also com~~

ii) $\angle DBC$ is a right angle as $\angle DBC$ make a 90° curve and they are complementary

∴ Thus making them a right angle

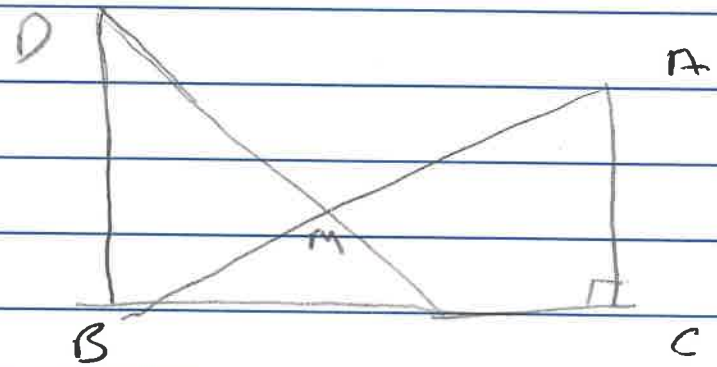
iii) M is Midpoint (common)

$\angle D$ is parallel to $\angle C$

$\angle A$ is parallel to $\angle B$

Both $\triangle DBC$ & $\triangle ACB$ are complementary and are 90°

∴ $\triangle DBC \cong \triangle ACB$



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3(b) i) $2x + 30 = 180$

$2x = 180 - 30$

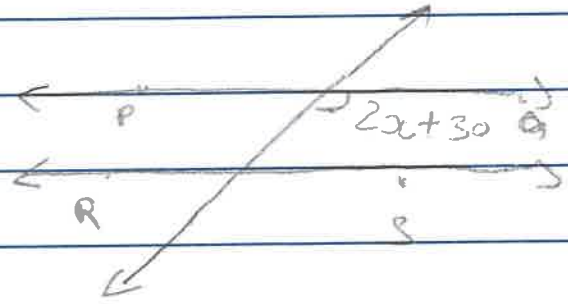
$2x = 150$

$x = \frac{150}{2}$ 70.1

$x = 70.1$

$x = 70$

$70x$



ii) $2x + x + 15 = 14$

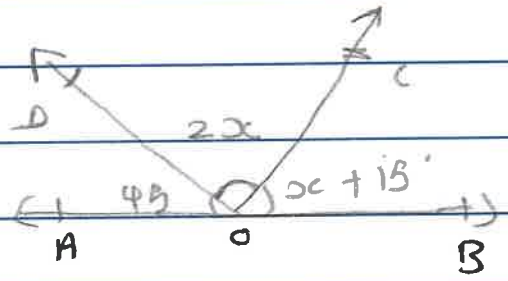
$3x + 15 = 45$

$3x = 45 - 15$

$3x = 30$

$x = \frac{30}{3}$

$x = 10$



3B) 10.2
+ 4.2
14.4

36)

36.i 16 teachers

36 ii 58 girls

36 iii) 37 boys

37) i) Semi perimeter = ~~s+a+b+c~~

$$S = \frac{a+b+c}{2}$$

$$S = \frac{24 + 26 + 22}{2}$$

$$S = \frac{72}{2}$$

ii) Area $= \frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 22 \times 120$

$= \frac{1}{2} \times 2640$

iv) $S = \frac{a+b+c}{2} = \frac{120 + 112 + 22}{2}$

$= 432$

$A = \frac{1}{2} \times b \times h = \frac{1}{2} \times 22 \times 120$

$= \frac{1}{2} \times 1540$

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38. i) 180°

ii) 90°

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