

## Maths Model Examinations 2023

1. **26,33**

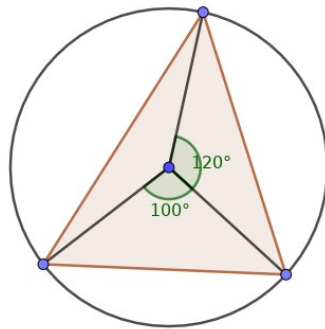
2.  $\frac{3}{10}$

3. (a)  $BC = 5$  (b)  $AB = 5\sqrt{3}$

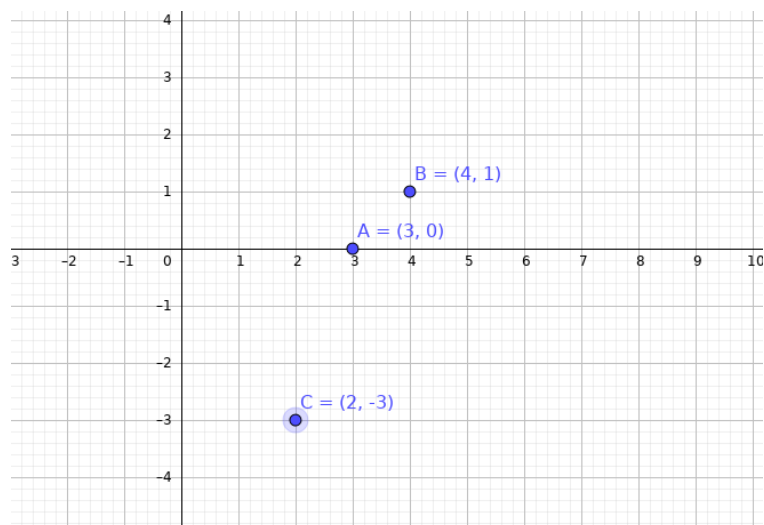
4. 10

5. (a)  $x_3 = 29$  (  $145/5$  )  
(b) **21,25,29,....**

6. Construction



7.



8.

$$x^2 + 2x + 2x = 96$$

$$x^2 + 4x = 96$$

$$x^2 + 4x + 2^2 = 96 + 2^2$$

$$(x+2)^2 = 100$$

$$x+2=10$$

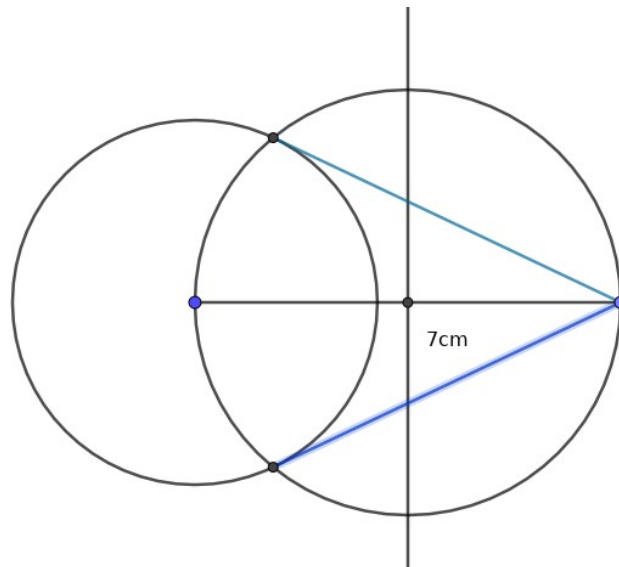
$$\mathbf{x=8}$$

9

(a) **BPQR** is a  $\text{II}^{\text{gm}}$

(b) **B(2,0) C(8,0)**

10.



11.

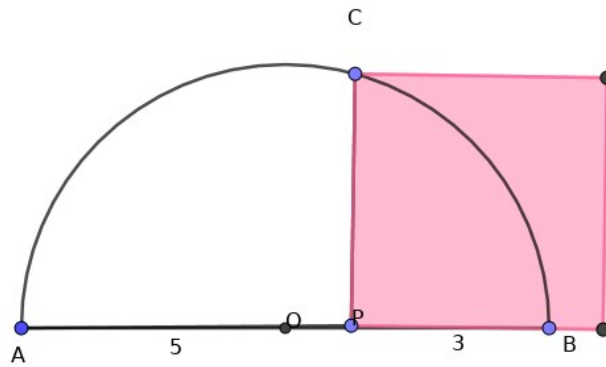
**7,11,15,19,....**

$$x_{10} = \mathbf{43}$$

**100 is not a term**

12.

$$\mathbf{PC = \sqrt{15}}$$



13.

$$2(l+b) = 80$$

$$l+b = 40$$

$$\text{length} = x$$

$$\text{breadth} = 40 - x$$

$$x(x-40) = 384$$

$$x^2 - 40x - 384 = 0$$

$$x = 24, 16$$

14.

$$(a) \frac{20 \times 24}{2250} = \frac{480}{2250}$$

$$(b) \frac{25 \times 26}{2250} = \frac{650}{2250}$$

$$(c) \frac{25 \times 24 + 20 \times 26}{2250}$$

15.

(a)  $AM=10$  ,  $BM= 10$  (1:1: $\sqrt{2}$ )

(b)  $MC=5$

(c)  $AC= \sqrt{125}=5\sqrt{5}$

16.

(a)  $P(2)= 3$

(b)  $P(x)-P(2) = x^2-11x+18$

(c)  $(x-9)(x-2)$

17.

(a)  $B(7,1)$   $D( 3,4)$

(b)  $AC=5$

18.

(a)  $D(4,9)$

(b)  $2$

(c)  $y-2x=1$

19.

(a)  $90^\circ$

(b)  $20^\circ$

(c)  $140^\circ$

(d)  $70^\circ$

20.

(a)  $l=12$

(b)  $T SA =b^2+2bl=340$  sq cm

21.

(a)  $.10$

(b)  $1:2$

(c)  $1:4$

(d)  $1:2$

22.

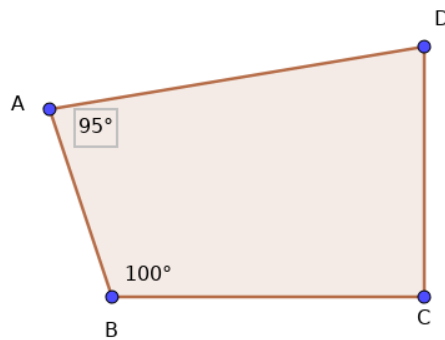
$$X_8 + X_{19} = 125$$

(a)  $X_7 + X_{20} = 125$

(b)  $X_6 + X_{21} = 125$  ,  $40 + X_{21} = 124$   $X_{21} = 85$

(c)  $S_{26} = \frac{26}{2} [ X_1 + X_{26} ] = 13 * [125] = 1625$

23.

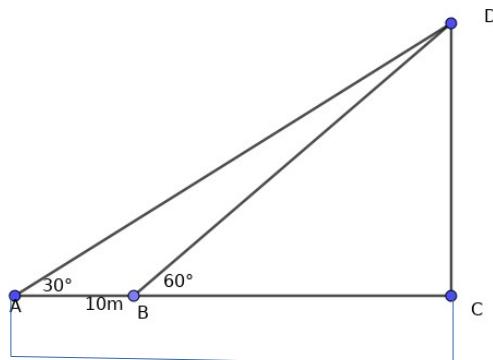


(a)  $\angle D = 75$

(b) C is on circle, A is inside the circle

(c) D is outside circle [  $\angle B + \angle D < 180$  ]

24.



in  $\triangle BCP$   $\tan 60 = DC/BC$

$$\sqrt{3} = \frac{h}{x}$$

$$h = \sqrt{3}x \dots \dots \dots (i)$$

in  $\triangle ACD$   $\tan 30 = h/(x+10)$

$$\frac{1}{\sqrt{3}} = \frac{h}{x+10}$$

$$h\sqrt{3} = x+10 \dots \dots \dots (ii)$$

$$\sqrt{3}x * \sqrt{3} = x+10$$

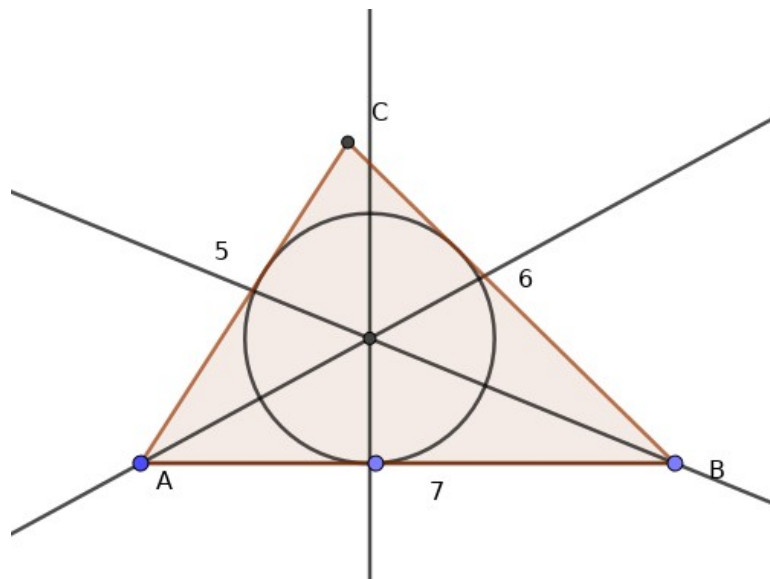
$$3x = x+10$$

$$2x = 10$$

$$x = 5$$

$$h = 5\sqrt{3} + 1.5$$

25.



(b) in radius  $r = 1.6\text{cm}$

26.

(a) Surface Area =  $108\pi$  sq cm (Area =  $3\pi r^2$ )

$$(b) \frac{2}{3} \pi 6*6*6 = \frac{1}{3} \pi * 6*6*h$$

$$h = 12\text{cm}$$

(a) x-axis (10,0) (-10,0) y axis (0,10),(0,-10)

(b) Dist (0,0) (6,8) = 10 so (6,8) is on Circle

(c)  $x^2+y^2=100$

28

Height	No.
Below 130	2
Below 140	9
Below 150	19
Below 160	24
Below 170	25

13<sup>th</sup> Child height is the median height

140-141 10<sup>th</sup>

141-142 11<sup>th</sup>

142-143 12<sup>th</sup>

**143-144 13<sup>th</sup>**

144-145 14<sup>th</sup>

145-146 15<sup>th</sup>

.....

(b) **143.5 cm**

29.

(a)  $13=6+7$

(b)  $14=2+3+4+5$

(c)  $101= 50+51$

(d) **32,64** { even numbers which are powers of 2 (2,4,8,16,32,62,128,256,.. cannot written as sum of consecutive natural numbers

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