



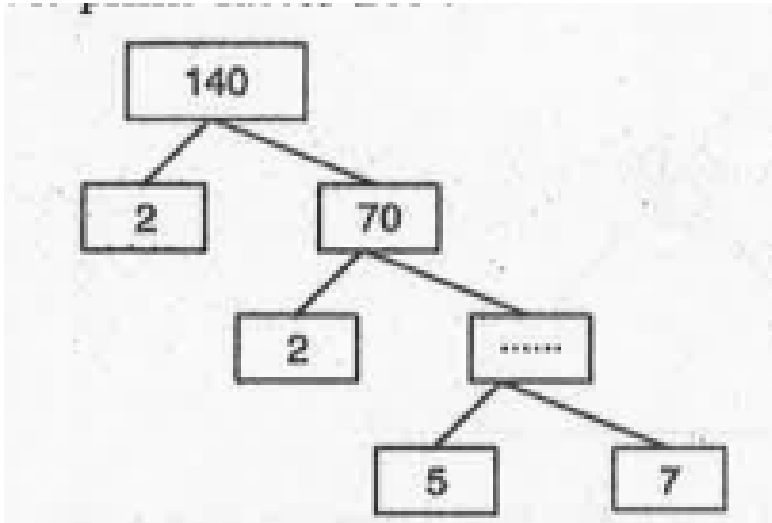
**MATHS**

**BOOKS - MBD**

**Board Question Papers**

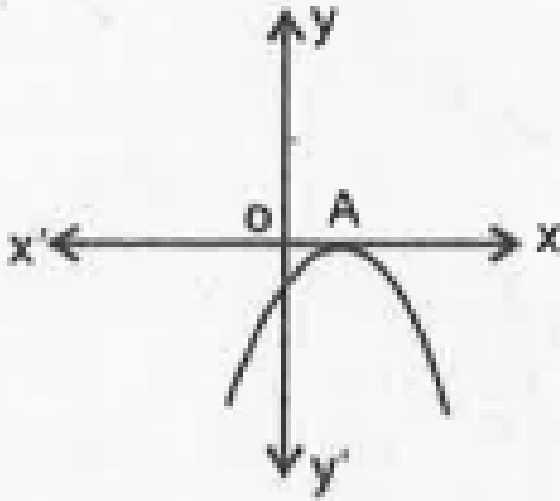
**Exercise**

1. Complete the prime factor tree :



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2. The graph of  $y = p(x)$  is given. Find the number of zeroes of  $p(x)$



A. 0

B. 1

C. 2

D. 3

**Answer:**



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3. Write first four terms of the A.P. when the first term  $a = 4$  and common difference  $d = -3$ .



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4. Which point lies on the x-axis from the following :

A.  $(1, 1)$

B.  $(2, 0)$

C.  $(0, 3)$

D.  $(-4, -2)$

**Answer:**



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5. The hypotenuse is the ..... side in right triangle.



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6. Write the formula for finding the area of the sector of a circle with angle  $\theta$ .



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7. State whether it is True or False

The formula for finding the surface area of the sphere is  $\frac{4}{3}\pi r^3$ .



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**8.** Probability of an event  $E$  + Probability of the event 'not  $E$ ' = 1.



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**9.** Express 5005 as a product of its prime factors.



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**10.** Find zeroes of the quadratic polynomial  $3x^2 - x - 4$  and verify the relationship between the zeroes and the coefficients.



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**11.** The coach of a cricket team buys 3 bats and 6 balls for Rs 3900. Later, he buys another bat and 3 more balls of the same kind for Rs 1300. Represent this situation algebraically.



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**12.** Check whether the equation

$x(2x + 3) = x^2 + 1$  is quadratic equation.

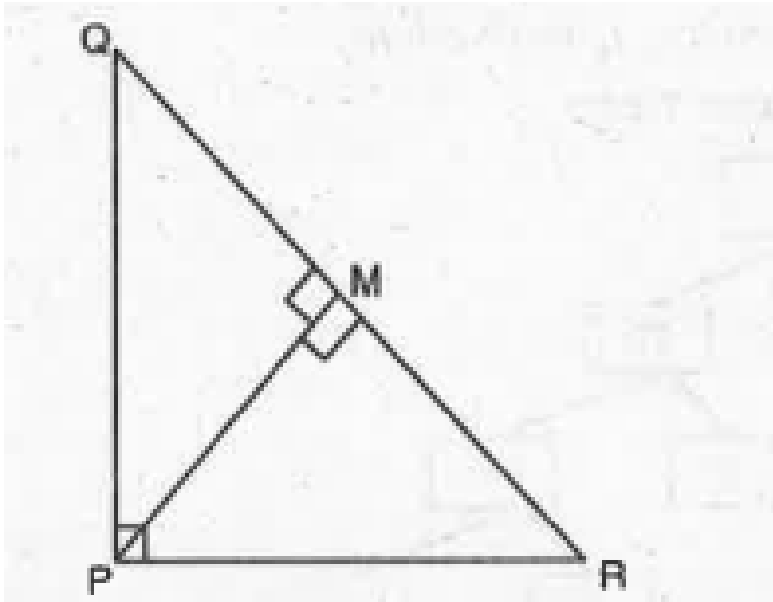


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**13.** PQR is a triangle right angled at P and M is

a point on QR such that  $PM \perp QR$ . Show

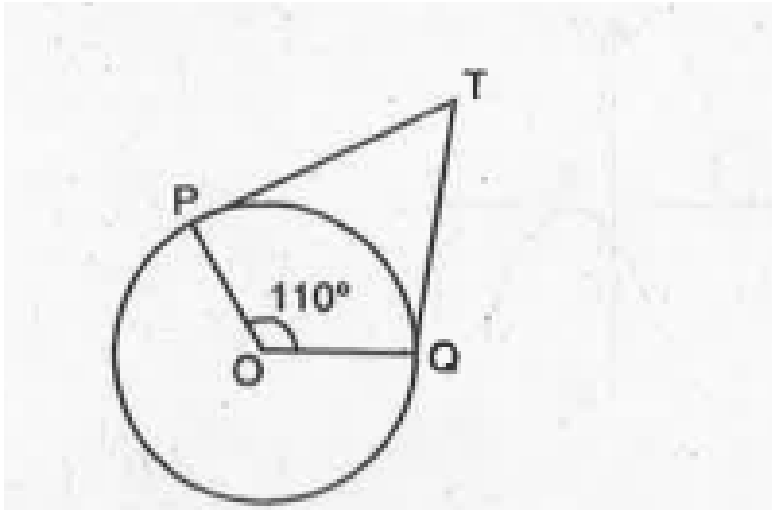
that  $PM^2 = QM \cdot MR$ .



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**14.** In given figure, if TP and TQ are the two tangents to a circle with centre O so that

$\angle POQ = 110^\circ$ , find angle  $\angle PTQ$ .



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**15.** The following table gives the literacy rate (in percentage) of 35 cities. Find the mean

literacy rate.

| Literacy rate<br>(in %) | 45 – 55 | 55 – 65 | 65 – 75 | 75– 85 | 85 – 95 |
|-------------------------|---------|---------|---------|--------|---------|
| Number of cities        | 3       | 10      | 11      | 8      | 3       |



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**16.** One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting : a spade



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17. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting : a the queen of diamond.



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18. The sum of the reciprocals of Rehman's ages, (in years) 3 years ago and 5 years from now is  $\frac{1}{3}$ . Find his present age.



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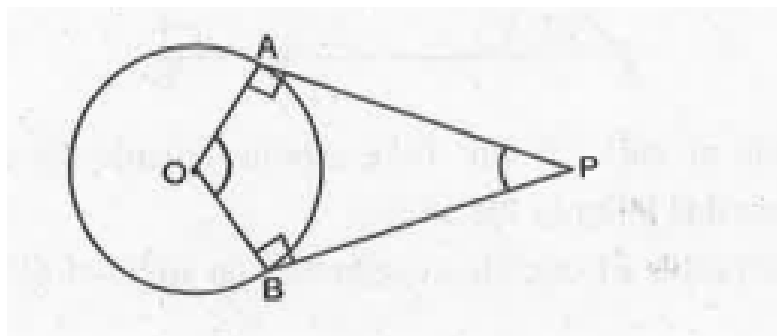
**19.** How many terms of the A.P. : 9, 17, 25, .....must be taken to give a sum of 636 ?



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**20.** Prove tht the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line-segment joining the

points of contact at the centre.

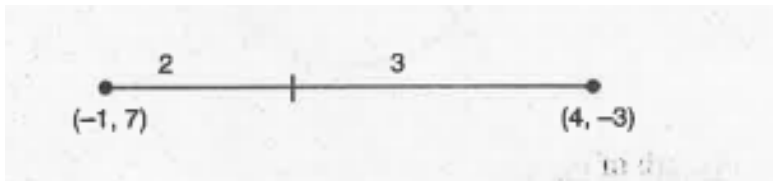


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21. Prove that the sum of the squares of the sides of a rhombus is equal to the sum of the squares of its diagonals.

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22. Find the coordinates of the point which divides the join of  $(-1, 7)$  and  $(4, -3)$  in the ratio  $2:3$ .



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23. Find the value of  $y$  for which the distance between the points  $P(2, -3)$  and  $Q(10, y)$  is 10 units.



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24. Match the following :  $\sin(90^\circ - A)$



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25. Match the following :  $\cos(90^\circ - A)$



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26. If  $3\cot A=4$ , check whether

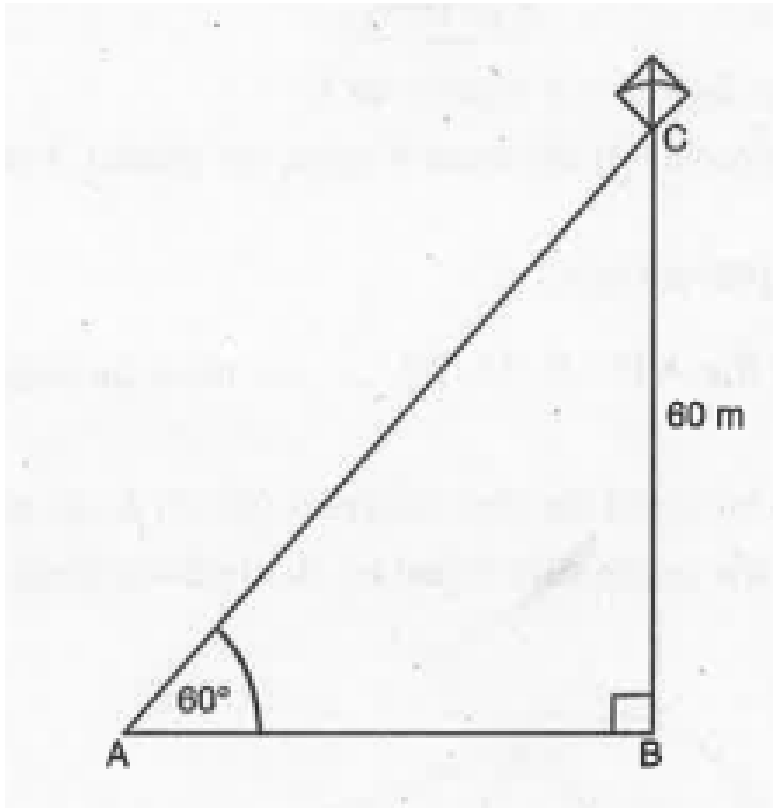
$$\frac{1 - \tan^2 A}{1 + \tan^2 A} = \cos^2 A - \sin^2 A \text{ or not}$$



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**27.** A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is  $60^\circ$ . Find the length of the string, assuming that

there is no slack in the string.



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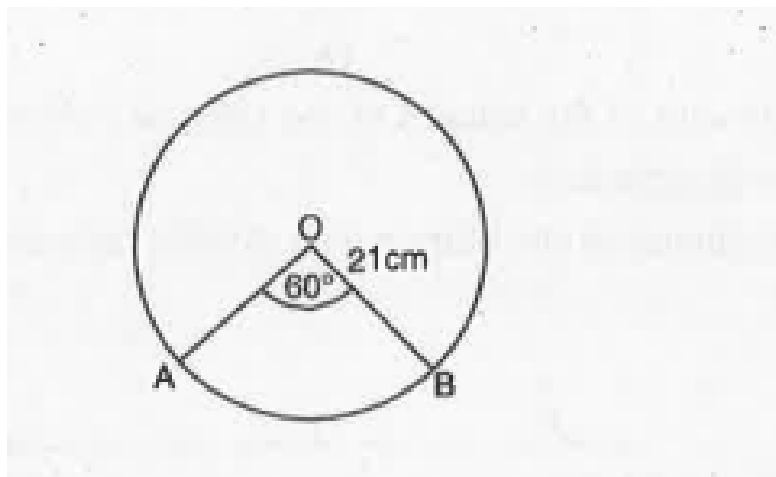
**28.** Draw a circle of radius 3 cm. Take a point outside the circle. Construct the pair of tangents from this point to the circle.



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**29.** In a circle of radius 21 cm, an arc subtends an angle of  $60^\circ$  at the centre. Find : the length

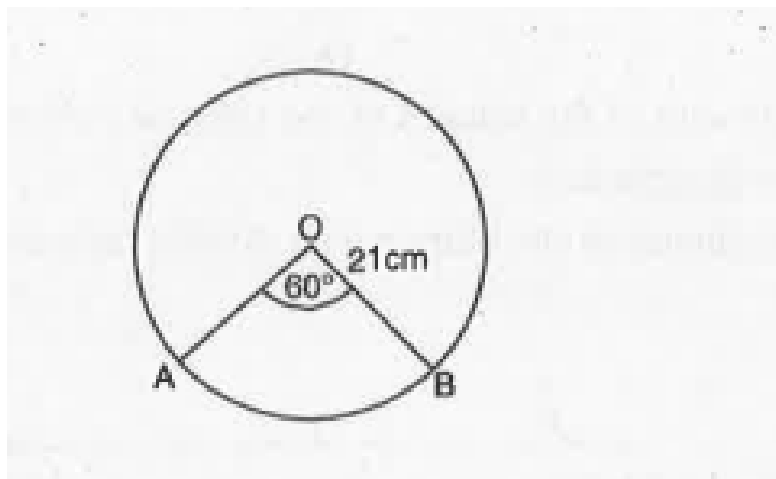
of the arc



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**30.** In a circle of radius 21 cm, an arc subtends an angle of  $60^\circ$  at the centre. Find : area of the

sector formed by the arc



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**31.** 2 women and 5 men can together finish an embroidery work in 4 days, while 3 women and 6 men can finish it in 3 days. Find the time

taken by 1 woman alone to finish the work, and also that taken by 1 man alone.



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**32.** If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. Prove it.



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**33.** Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that  $\angle PTQ = 2\angle OPQ$ .

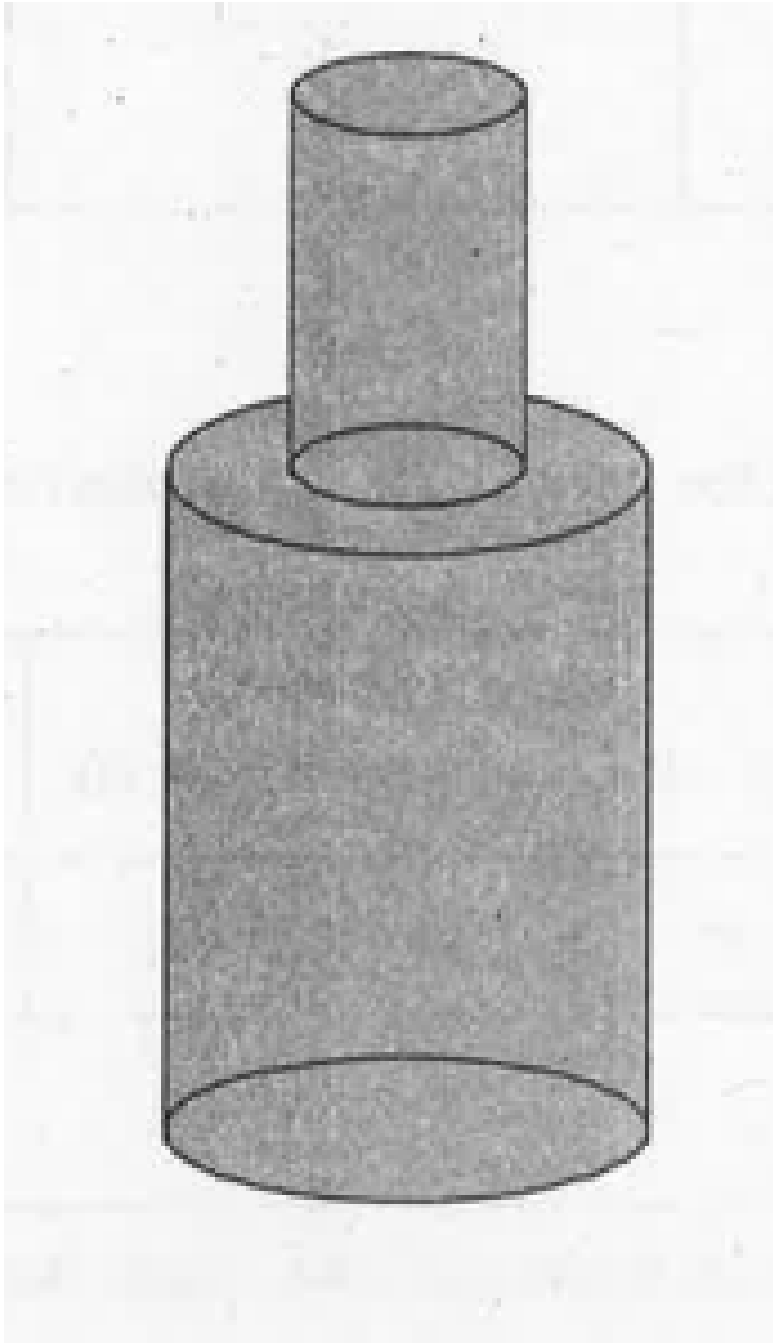


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**34.** A solid iron pole consists of a cylinder of height 220 cm and base diameter 24 cm, which is surmounted by another cylinder of height 60 cm and radius 8 cm. Find the mass of the pole, give that  $1\text{cm}^3$  of iron has approximately



8g mass. (Use  $\pi = 3.14$ )

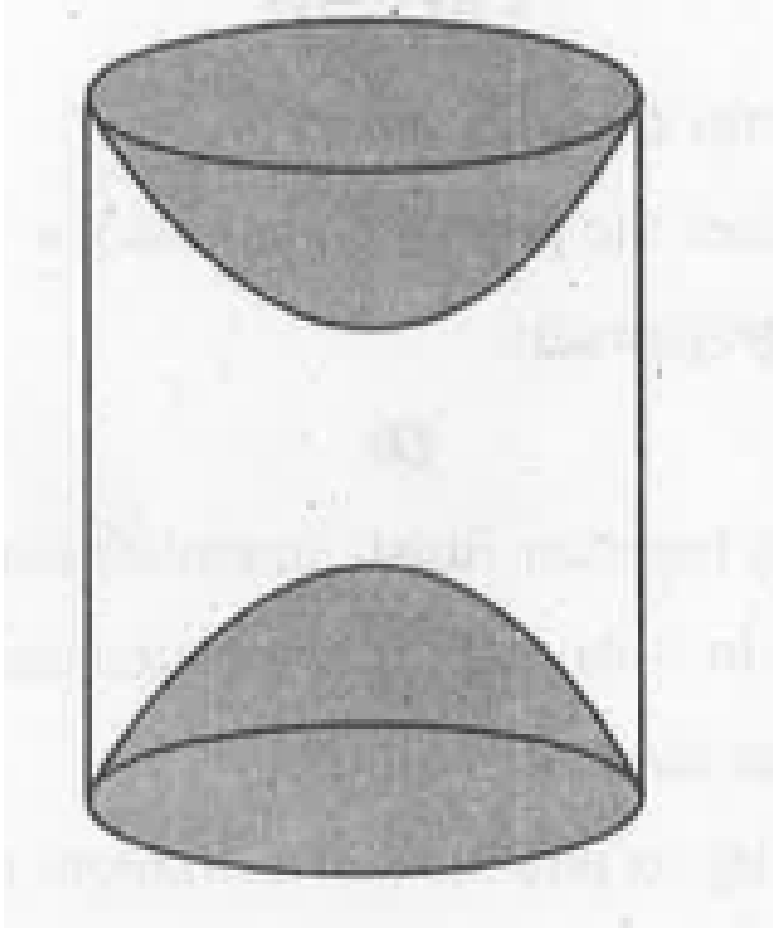




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**35.** A wooden article was made by scooping out a hemisphere from each end of a solid cylinder, as shown in the figure. If the height of the cylinder is 10 cm and its base is of radius 3.5 cm, find the total surface area of the

article.



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**36.** A survey regarding the heights (in cm) of 51 girls of Class X of a school was conducted and the following data was obtained :

| Height (in cm) | Number of girls |
|----------------|-----------------|
| Less than 140  | 4               |
| Less than 145  | 11              |
| Less than 150  | 29              |
| Less than 155  | 40              |
| Less than 160  | 46              |
| Less than 165  | 51              |

find the

median height.



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**37.** The following data gives the information on the observed lifetime (in hours) of 225 electrical components :

|                         |        |         |         |         |          |           |
|-------------------------|--------|---------|---------|---------|----------|-----------|
| Lifetimes<br>(in hours) | 0 – 20 | 20 – 40 | 40 – 60 | 60 – 80 | 80 – 100 | 100 – 120 |
| Frequency               | 10     | 35      | 52      | 61      | 38       | 29        |

Determine the modal lifetimes of the components.



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