

Except for the following questions, all the remaining questions have been asked in [Set - I](#) and [Set - II](#).

Q. 2. If $(x - 4)(x + 5)$ is the HCF of the polynomials
 $p(x) = (x^2 - x - 12)(3x^2 + 14x + a)$ and $q(x) = (x^2 + 2x - 15)(2x^2 - 3x + b)$.

Q. 6. If $P = 1 + \frac{x}{1-x}$, $Q = \frac{x}{1+x} - 1$ and $R = \frac{1+x^2}{1-x^2}$, find $(P \times Q) \div R$.

Q. 8. Find the sum of all the natural numbers less than 200 which are divisible by 5.

Q. 10. A household article is available for Rs. 970 cash or Rs. 210 cash down payment followed by three equal monthly instalments. If the rate of interest charged under the instalment scheme is 16% per annum, find the amount of each instalment.

Q. 11. Draw the graphs of the equations:
 $3x - y + 9 = 0$ and $3x + 4y - 6 = 0$
Also determine the vertices of the triangle formed by the lines and the x-axis.

Q. 15. The Arithmetic Mean of the following frequency distribution is 52.5. Find the value of p.

Classes	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100
Frequency	15	22	37	p	21

Q. 19. A card is drawn at random from a well-shuffled deck of playing cards. Find the probability that the card drawn is:

- a king or a jack
- a non-ace
- a red card
- neither a king nor a queen.

Q. 21. Prove that in a triangle, if the square of one side is equal to the sum of the squares of the other two sides, then the angle opposite to the first side is a right angle.

Using the above theorem, prove the following:

In Figure 3, O is a point inside $\triangle PQR$ such that $\angle POR = 90^\circ$, $OP = 6$ cm and $OR = 8$ cm. If $PQ = 24$ cm, $QR = 26$ cm, prove that $\triangle PQR$ is a right angled triangle.

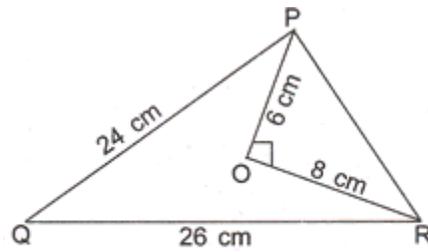


Fig. 3

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