

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

Q. 1. Express the following as a rational expression in lowest terms:

$$\frac{x-1}{x-2} + \frac{2}{2-x} - \left(\frac{x+1}{x+2} + \frac{4}{4+x^2} \right)$$

Q. 2. Find the HCF of the following polynomials:

$$4x^2y^2(x^2 - a^2); 48xy^4(x^3 - a^3) \\ 64x^3y^3z^3(x^6 + a^2)(x - a)$$

Q. 3. Which term of the arithmetic progression 8, 14, 20, 26, ... will be 72 more than its 41st term?

Q. 4. In an AP, the sum of first n terms is $\frac{3n^2}{2} + \frac{5n}{2}$. Find its 25th term.

Q. 11. Solve the following equations graphically:

$$3x - 4y = 7 \text{ and } 5x + 2y = 3$$

Shade the region between the lines and the y-axis.

Q. 15. Find the mean of the following frequency distribution:

Classes	50 - 70	70-90	90-110	110-130	130-150	150-170
Frequency	18	12	13	27	8	22

Q. 18. The vertices of a triangle are $(-1, 3)$; $(1, -1)$ and $(5, 1)$. Find the lengths of medians through vertices $(-1, 3)$ and $(5, 1)$.

Q. 21. If a line touches a circle and from the point of contact a chord is drawn, angles which this chord makes with the given line are equal respectively to the angles formed in the corresponding alternate segment. Prove it.

Using the above solve the following:

In Figure 4, PQ is tangent at a point R of the circle with centre O. If $\angle RST = 30^\circ$, find $\angle PRS$.

