

Progress Check-2

- Q. 1. The value of c for which the pair of equations $cx - y = 2$ and $6x - 2y = 4$ will have infinitely many solutions is :
 (a) 3 (c) 4
 (b) -3 (d) None of these
- Q. 2. The solution of the quadratic equation $4\sqrt{3}x^2 - 5x - 2\sqrt{3} = 0$ is _____.
- Q. 3. Solve for x and y .
 $71x + 37y = 253$ and $37x + 71y = 287$
- Q. 4. Solve for x : $3\left(\frac{3x-1}{2x+3}\right) - 2\left(\frac{2x+3}{3x-1}\right) = 5$, where $x \neq \frac{1}{3}, -\frac{3}{2}$.
- Q. 5. Solve for x : $\frac{1}{2a+b+2x} = \frac{1}{2a} + \frac{1}{b} + \frac{1}{2x}$.
- Q. 6. A motor boat whose speed is 18 km/hr. in still water takes 1 hr. more to go 24 km upstream than to return downstream to the same spot. Find the speed of stream.
- OR
- Two water taps together can fill a tank in $9\frac{3}{8}$ hours. The tap of larger diameter takes 10 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.
- Q. 7. Solve for x and y : $0.4x - 1.5y = 6.5$ and $0.3x + 0.2y = 0.9$.
- Q. 8. If the roots of the quadratic equation $(a-b)x^2 + (b-c)x + (c-a) = 0$ are equal, prove that $b+c=2a$.
- Q. 9. Form the pair of linear equations in the following problem, and find their solutions graphically
 5 pencils and 7 pens together cost ₹ 50, whereas 7 pencils and 5 pens together cost ₹ 46. Find the cost of one pencil and that of one pen.
- Q. 10. Draw the graphs of the equation $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the X-axis and shade the triangular region.
- Q. 11. Three-eighth of the students of a class opted for visiting an old-age home. Sixteen students opted for having a nature walk. Square root of total number of students in the class opted for tree plantation in the school. The number of students who visited the old age home is sum of the number of students who went for a nature walk and did tree plantation. Find the total number of students.
- Q. 12. X takes 3 hours more than Y to walk 30 km. But, if X doubles his pace, he is ahead of Y by $1\frac{1}{2}$ hours. Find their speed of walking.
- Q. 13. Two years ago, a man was five times as old as his son. Two years later, his age will be 8 more than three times the age of the son. Find the present ages of the man and his son.
- Q. 14. If α and β are roots of a quadratic equation such that $\alpha + \beta = 2$ and $\alpha^4 + \beta^4 = 272$, then find the equation.
- Q. 15. A cottage industry produces a certain number of pottery articles in a day. On a particular day, it was observed that the cost of production of each article was 3 more than twice the number of articles produced on that day. Also, the total cost of production on that day was ₹ 90. Based on the given situation, answer the following questions :
 (i) Find the number of articles produced on that days.

(ii) What is the cost of each article ?

(iii) Solve for x : $x^2 - 2x - 15 = 0$

Q. 16. A man sold a chair and a table together for ₹ 760, there by making a profit of 25% on the chair and 10% on the table. Had they been sold together for ₹ 767.50, he would have made a profit of 10% on chair and 25% on the table. Find the cost price of each.

Q. 17. Chandana and Sohana are very close friends. Chandana's parents own a Maruti Alto. Sohana's parents own a Toyota Livo. Both the families decided to go for to Somanath temple in Gujrat by their own cars.

Chandana's car travels x km/hr while Sohana's car travels 5 km/h more than Chandana's car. Chandana's car took 4 hrs more than Sohana's car in covering 400 km.

(i) What will be distance covered by Sohana's car in two hour ?

(a) $2(x + 5)$ km

(c) $2(x + 10)$ km

(b) $(x + 5)$ km

(d) $(2x + 5)$ km

(ii) Which of the following quadratic equation describe the speed of Chandana's car ?

(a) $x^2 - 5x - 500 = 0$

(c) $x^2 + 5x - 500 = 0$

(b) $x^2 + 4x - 400 = 0$

(d) $x^2 - 4x + 400 = 0$

(iii) What is the speed of Chandana's car ?

(a) 20 km/hour

(c) 25 km/hour

(b) 15 km/hour

(d) 10 km/hour

(iv) How much time took Sohana to travel 400 km ?

(a) 20 hour

(c) 25 hour

(b) 40 hour

(d) 16 hour

(v) How much time took Chandana to travel 400 km ?

(a) 15 hour

(c) 20 hour

(b) 18 hour

(d) 16 hour

Directions : (Q. 18) In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as :

(a) Both assertion (A) and reason (R) are correct and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are correct, but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false, but reason (R) is true.

Q. 18. **Assertion (A):** If $f(x)$ is a quadratic expression such that $f(1) + f(2) = 0$. If -1 is a root of $f(x) = 0$, then the other root is $8/5$.

Reason (R): If $f(x) = ax^2 + bx + c$, then $\alpha + \beta = -b/a$ and $\alpha\beta = c/a$

