

X - Mathematics Assignment No. 8 - Quadratic Equations

Word-Problems

- Q1. The sum of two numbers is 18 and their product is 45. Find the numbers.
- Q2. Divide 29 into two parts so that the sum of the squares of the parts is 425.
- Q3. Find two consecutive natural numbers whose product is 20.
- Q4. Find two consecutive numbers whose squares have the sum 85.
- Q5. The sum of the squares of three consecutive natural numbers is 149. Find the numbers.
- Q6. Find the whole number which when increased by 20 is equal to 69 times the reciprocal of the number.
- Q7. The sum of a number and its reciprocal is $2\frac{16}{27}$. Find the number.
- Q8. The speed of a boat in still water is 15 km/hr. It can go 30 km upstream and return downstream to the original point in $4\frac{1}{2}$ hrs. Find the speed of the stream.

ANS:-

① 3, 15

② 13, 16

Q3. 4, 5

Q4. ±6, ±7

⑤ 6, 7, 8

⑥ 3

① $\frac{1}{3}, \frac{3}{7}$

⑧ 5 Km/hr.

Cont Pg-2

- Q9 Ram can row a boat 8km downstream and return in 1 hour 40 minutes. If the speed of the stream is 2km/hr. Find the speed of boat in still water.
- Q10 A passenger train takes 3 hrs less for a journey of 360 km. If its speed is increased by 10km/hr from the usual speed. Find its usual speed.
- Q11. A plane left 30 minutes later than the scheduled time and in order to reach its destination 1500km away in time it has to increase its speed by 250 km/hr from its usual speed. Find its usual speed.
- Q12. The area of a triangle is 30 sq.cm. Find the base if the altitude exceeds the base by 7 cm.
- Q13. The hypotenuse of a right angled triangle is 6m more than twice the shortest side. If the third side is 2m less than the hypotenuse. Find sides of the triangle
- (14) The hypotenuse of a right angled triangle is 1m less than twice the shortest side. If the third side is 1m more than the shortest side. Find the sides of the triangle.

Ans:-

- (1) 10 Km/hr
 (10) 30 Km/hr
 (11) 750 Km/hr

- (12) Base = 5cm
 (13) 10m, 24m, 26m
 (14) 3m, 4m, 5m.

Cont Pg 3

- Q15. A year ago, the father was 8 times as old as his son. Now his age is the square of his son's age. Find their present ages.
- Q16. A man is 3 times as old as his son and 6 years ago, the product of their ages was 288. Find their present ages.
- Q17. A two digit number is such that the product of the digits is 18. When 63 is subtracted from the number, the digits interchange their places. Find the number.
- Q18. A two digit number is such that the product of the digits is 14. When 45 is added to the number, the digits interchange their places. Find the number.
- Q19. One fourth of a herd of camels was seen in the forest. Twice the square root of the herd had gone to mountains and 15 camels were on the bank of river. Find the number of camels.
- Q20. Out of a group of swans, $\frac{1}{2}$ times the square root of the total number are playing on the shore of a pond. The two remaining ones are swimming in water. Find the total number of swans.

ANS:-

- (15) Son's age = 7 yrs
Father's age = 49 "
- (16) Son's age = 14 "
Father's age = 42 "

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|---------|----------|
| (17) 92 | (20) 16. |
| (18) 27 | |
| (19) 36 | |

Cont-Pg-4

- Q21. Some students planned a picnic. The budget for food was Rs 500. But 5 of them failed to go and thus the cost of each member increased by Rs 5. How many students attended the picnic?
- Q22. A piece of cloth costs Rs 200. If the piece were 5 metres longer and the cost of each meter of cloth was Rs 2 less, the cost of the piece would have remained unchanged. How long is the piece and what is its original price per metre?
- Q23. Rs 250 are divided equally among a certain number of children. If there are 25 more children, each would have received 50 paisa less. Find the number of children.
- Q24. A person on a tour has Rs 360 for his daily expenses. If he exceeds his tour by 4 days, he must cut down his daily expenses by Rs 3 per day. Find the original duration of the tour.
- Q25. The side of a square exceeds the side of another square by 4 cm and the sum of the areas of two squares is 400 square cm. Find the dimensions of the squares.

ANSWERS:-

(21) 20

(22) 20 m, Rs 10

(23) 100

(24) 20 days

(25) 12 cm, 16 cm.