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FIRST TERM EXAMINATION, 2024-2025
CLASS VIII
MATHEMATICS

Time Allowed: 3 hours

Maximum marks: 80

General Instructions

- Section A comprises of Objective Type Questions of 1 mark
- Section B comprises of 5 very short answer type questions of 2 marks each
- Section C comprises of 6 short answer type questions of 3 marks each
- Section D comprises of 3 long answer type questions of 4 marks each.
- All questions are compulsory but there is an internal choice in Q15,18 and 19.
- Rough work to be done in rough column only.

SECTION A: OBJECTIVE TYPE QUESTIONS

1. Choose the correct option

- i. The rate of interest which yields a simple interest of ₹ 280 on the sum of ₹ 56,000 for 2 years is:
- (a) $\frac{1}{2}\%$ (b) $\frac{1}{4}\%$ (c) $\frac{3}{8}\%$ (d) $\frac{3}{5}\%$
- ii. By selling an article for Rs 60, a shopkeeper gains Rs 12. His gain per cent is:
- (a) 12% (b) 25% (c) 31.6% (d) 50%
- iii. The sum of two rational numbers is -3 . If one of the numbers is $\frac{7}{5}$, then the other number is.
- (a) $\frac{22}{5}$ (b) $-\frac{22}{5}$ (c) $\frac{2}{5}$ (d) $\frac{8}{5}$
- iv. If $\frac{p}{q}$ and $\frac{r}{s}$ are two rational numbers such that $\frac{p}{q} \cdot \frac{r}{s} = 1$ and $q, s \neq 0$, which of the following is true?
- (a) $p=s$ and $q=r$ (b) $p=-s$ & $q=-r$
 (c) $p \cdot r = q \cdot s$ (d) all are correct
- v. If $4(x+2)=3(x-1)+5$, then the value of x is:
- (a) 1 (b) 2 (c) -6 (d) 6
- vi. Number of solution(s) of linear equation is/are:
- (a) at least one (b) at most two (c) infinite (d) one
- vii. Identify the linear equations in one variable from the given expressions.
- (a) $x^2 + x = 2$ (b) $3x + 5 = 11$
 (c) $5 + 7 = 12$ (d) $x + y^2 = 3$
- viii. In a parallelogram ABCD, if the measure of angle A is $2x+30^\circ$ and the measure of angle B is $3x$, then the measure of angle B is:
- (a) 100° (b) 90° (c) 140° (d) 150°
- ix. Which of the following is equals to 5^{-3} ?
- (a) 125 (b) -125 (c) $\frac{1}{125}$ (d) $-\frac{1}{125}$

x. If $a^m \times a^n = a^{12}$ and $a^m = a^4$ then what are the value of m and n?
(a) $m=6, n=6$ (b) $m=10, n=2$ (c) $m=8, n=4$ (d) $m=4, n=8$

xi. If $2x^5 = 32x^4$ then the value of x is:
(a) 2 (b) 4 (c) 8 (d) 16

xii. If p is inversely proportional to q, and $p=8$ when $q=4$, what is the value of q when $p=2$?
(a) 8 (b) 10 (c) 16 (d) 12

xiii. On which axis does the point (0,6) lie
(a) x-axis (b) y-axis
(c) origin (d) None of these

xiv. Assertion: If the cost of 16 books is 300. Then the cost of 18 books is 337.50.
Reason : In a direct proportion, when one increases other increases and vice versa.

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not the correct explanation of A
(c) A is true and R is false
(d) A is false and R is true

xv. Assertion (A) – The sum of angles of a convex polygon with number of sides 7 is 900° .

Reason (R) – A convex polygon is a polygon where all the diagonals lie inside the polygon.

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not the correct explanation of A
(c) A is true and R is false
(d) A is false and R is true

2. Fill in the blanks

i. If $\frac{a}{b}$ is a rational number, then $\frac{-a}{-b}$ is equal to $\frac{a}{b}$.

ii. Multiplicative inverse of $-\frac{19}{29}$ is $-\frac{29}{19}$.

iii. In an isosceles trapezium, the sum of the angles between the parallel sides is _____.

iv. In a classroom of 40 students, 25 are boys. The ratio of boys to girls is _____ : _____.

v. The usual form of 6.4×10^3 is _____.

vi. Simplest form of $a^p \times b^p$ is _____.

3. Write True/False

i. Rational numbers are closed under addition. T

ii. A rhombus with equal diagonals is a rectangle. F

iii. If the product of two rational numbers is 1, then both numbers must be reciprocals of each other. T

iv. If $3x + 6 = 9$ then $x = -1$. T

v. $a^0 = 1$ where $a \neq 0$. T

4. Rohit recently joins an MNC and needs to purchase a laptop for office work. So he went to a store offering various discounts on electronics during a special sale. The original price of a laptop is ₹42,000, and the store is offering a 15% discount on it.

- (i) Calculate the discount amount on the laptop (1)
- (ii) Determine the sale price of the laptop (1)
- (iii) If the store offers an additional 5% discount on the sale price, calculate the new sale price. (2)

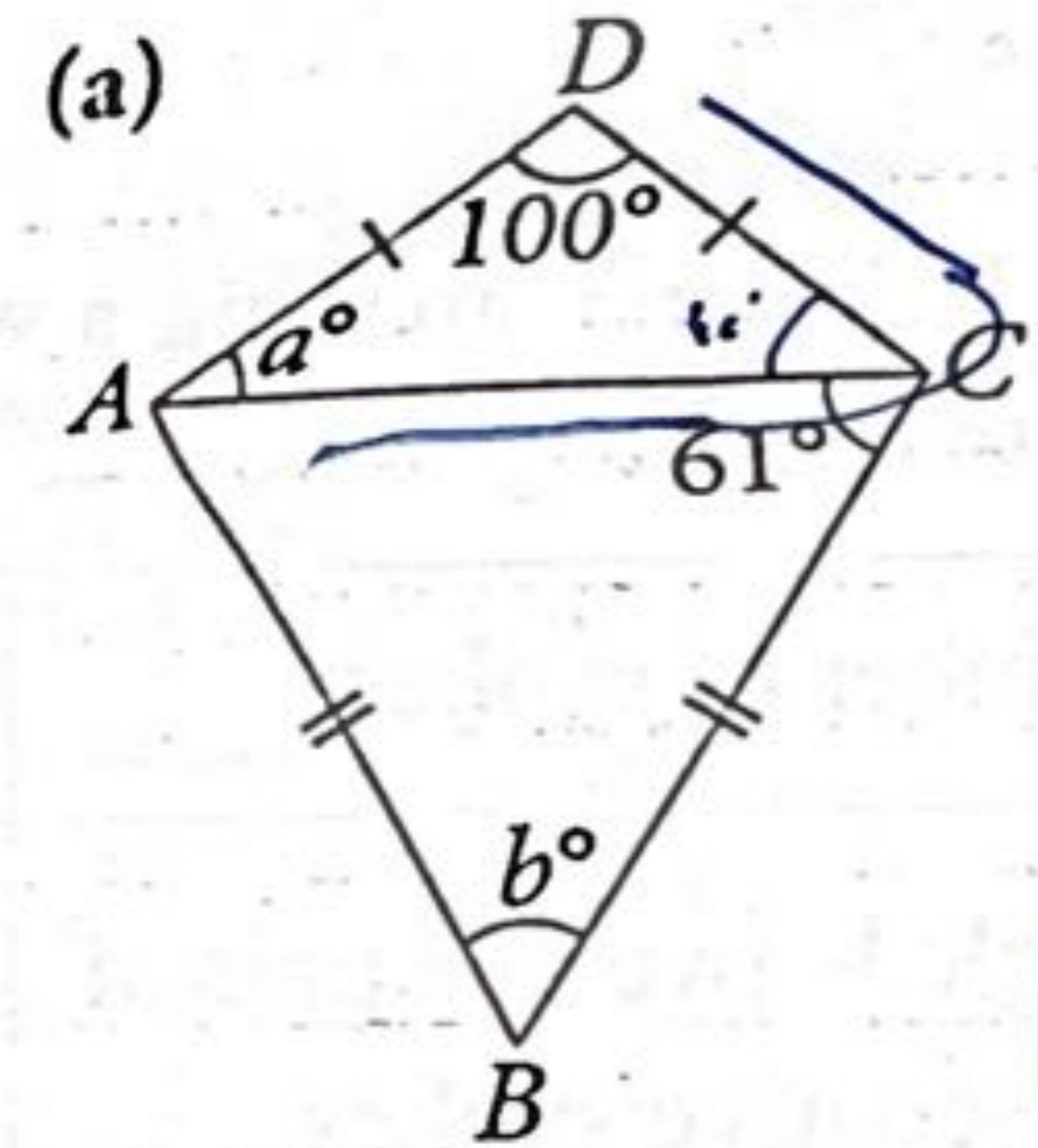
5. A garden centre sells two types of plants: roses and tulips.

If more number of plants are sold then more amount of fertilizer is used and vice versa. As the number of gardeners increased, watering more plants requires less time and vice versa. Now he observed that for 5 rose plants, 2 kg of fertilizer is used and for 8 tulip plants, 3 kg of fertilizer is used.

- (i) How much fertilizer is needed for 10 rose plants? (1)
- (ii) How much fertilizer is needed for 4 tulip plants? (1)
- (iii) How many plants can be fertilized if the amount of fertilizer for both the plants is 12 kg each? (2)

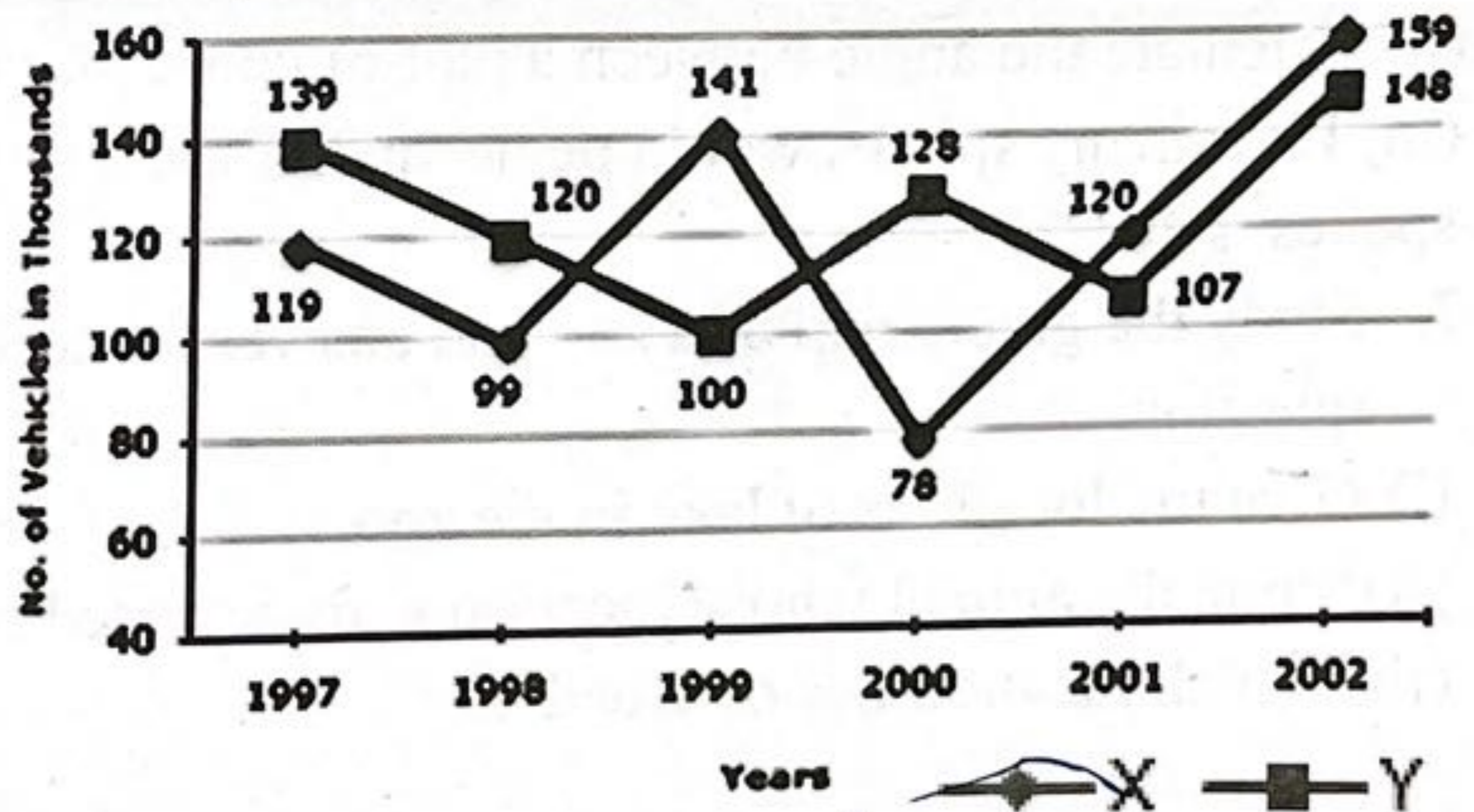
6. In the given kite ABCD, $\angle DCA = 40^\circ$ find:

- (i) the measurement of a° .
- (ii) the measurement of $\angle DAB$.
- (iii) the measurement of $\angle B$?



7. Following graph gives number of vehicles manufactured by two companies over the years

- (i) What is the sum of the productions of the two companies in the year 2000?
- (ii) What is the minimum difference between the production of the cars of company X and Y in a particular year?
- (iii) Find the average of total cars produced by both companies in year 1999.



SECTION B

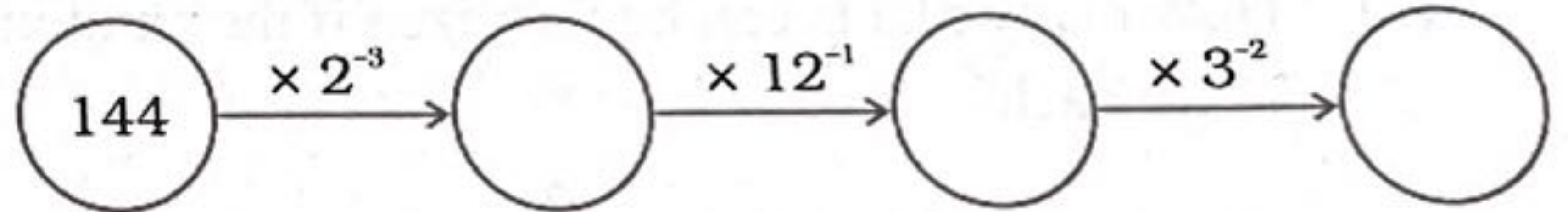
8. Evaluate: $\frac{2}{15} - \frac{4}{9} + \frac{3}{5} - \frac{1}{3}$
9. Solve for x: $2(x+2)+5(x+5)=4x+32$
10. A man got a 10% increase in his salary. If his new salary is ₹1,54,000, find his original salary.
11. Show the prime factorisation of 1225 and express it in exponential form.
12. A workforce of 20 men with a supervisor can finish a certain piece of work in 5 months. How many extra men must he employ if he wants to complete job in just 2 months?

SECTION C

13. Solve using property $\frac{2}{5} \times -\frac{3}{7} - \frac{1}{14} - \frac{3}{7} \times \frac{3}{5}$. Also mention the property used.
14. Solve : $5x - 2(2x-7) = 2(3x-1) + 6$ and verify the solution.
15. Prove that $\left[\left(\frac{1}{2}\right)^2\right]^3 \times \left(\frac{1}{3}\right)^{-4} \times 3^{-2} \times \frac{1}{6} = \frac{3}{128}$

OR

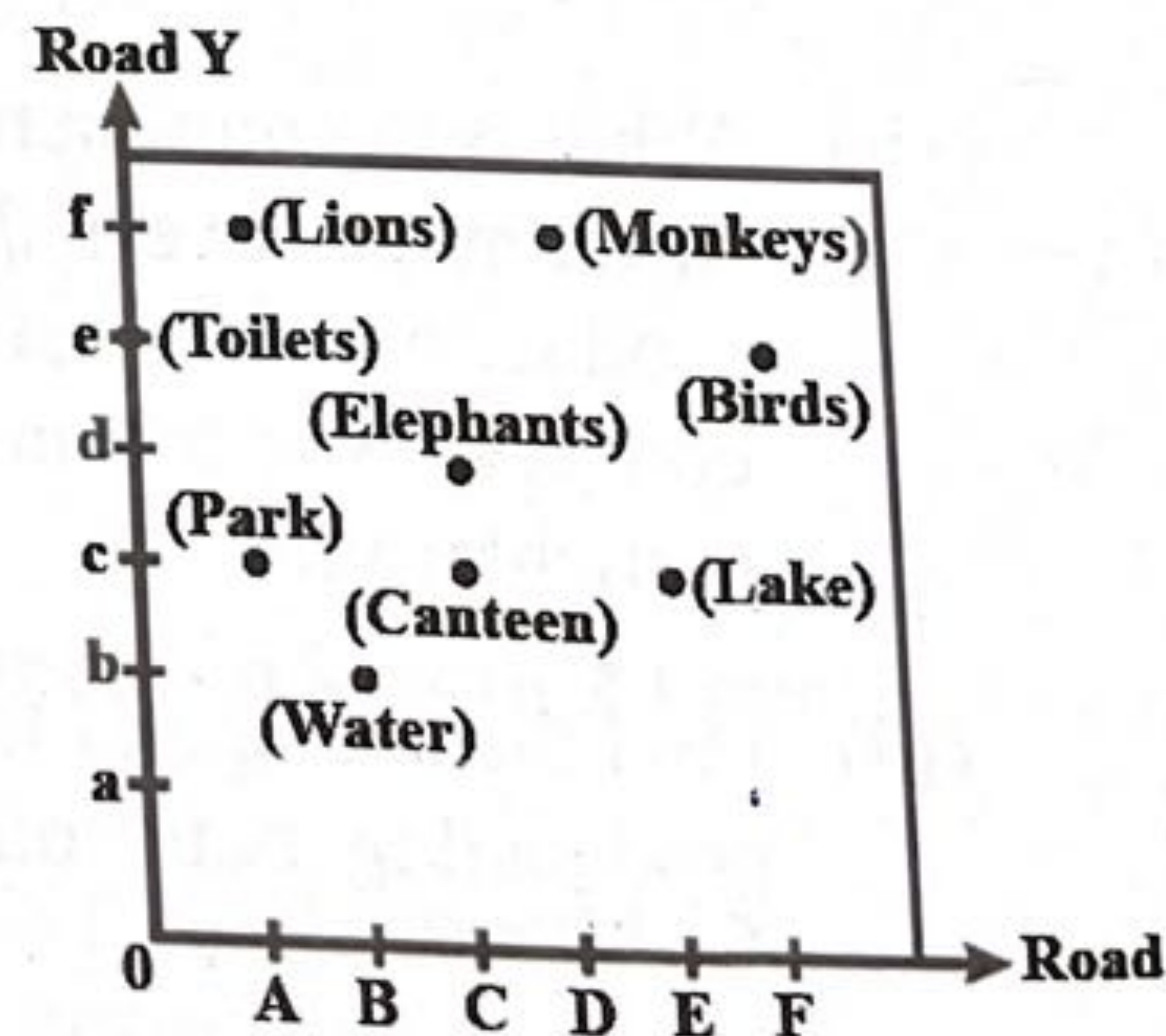
15. Fill the circles as directed



16. Rehman is making a wheel using spokes. He wants to fix equal spokes in such a way that the angles between any pair of consecutive spokes are equal.

Number of spokes	4	6	8	10	12
Angle between a pair of consecutive spokes	90°	60°	—	—	—

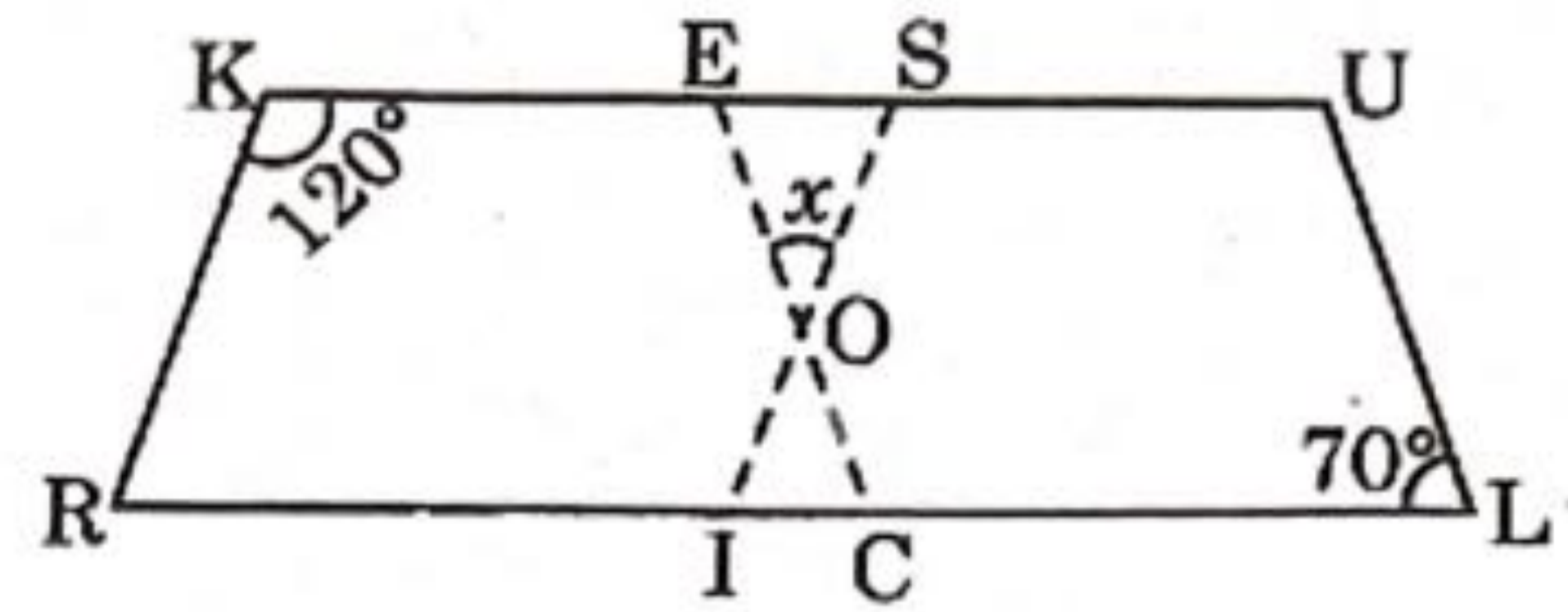
- (i) Are the number of spokes and the angle formed between the pairs of consecutive spokes in inverse proportion?
 - (ii) Calculate the angle between a pair of consecutive spokes with 12 spokes.
 - (iii) How many spokes would be needed, if the angle between a pair of consecutive spokes is 40°?
17. Study the given map of a zoo and answer the following question.
 - (i) Give the locations of lake in the zoo.
 - (ii) Name the animal whose location is represented by (D,f).
 - (iii) Which location lies on Road Y?



18. In the above figure both RISK and CLUE are parallelograms. Find the value of x

OR

18. Name one quadrilateral in which,
- diagonals bisect each other.
 - all sides are equal.
 - only adjacent sides are equal to each other.



$$\begin{array}{r} 41314 \\ 154000 \\ \hline 154000 \\ 00 \end{array}$$

$$\begin{array}{r} 41310 \\ 154000 \\ \hline 154000 \\ 138660 \end{array}$$

SECTION D

19. Rahul has two investment options for a sum of Rs 2,500:

Option A: 5% annual compound interest for 1 years.

Option B: 5% simple interest for 1 years.

- Calculate the interest for option a after 1 years
- Calculate the interest for option b after 1 years
- Determine which option yields more interest

OR

19. The population of a place increased to 1,08,000 in 2004 at a rate of 5% per annum

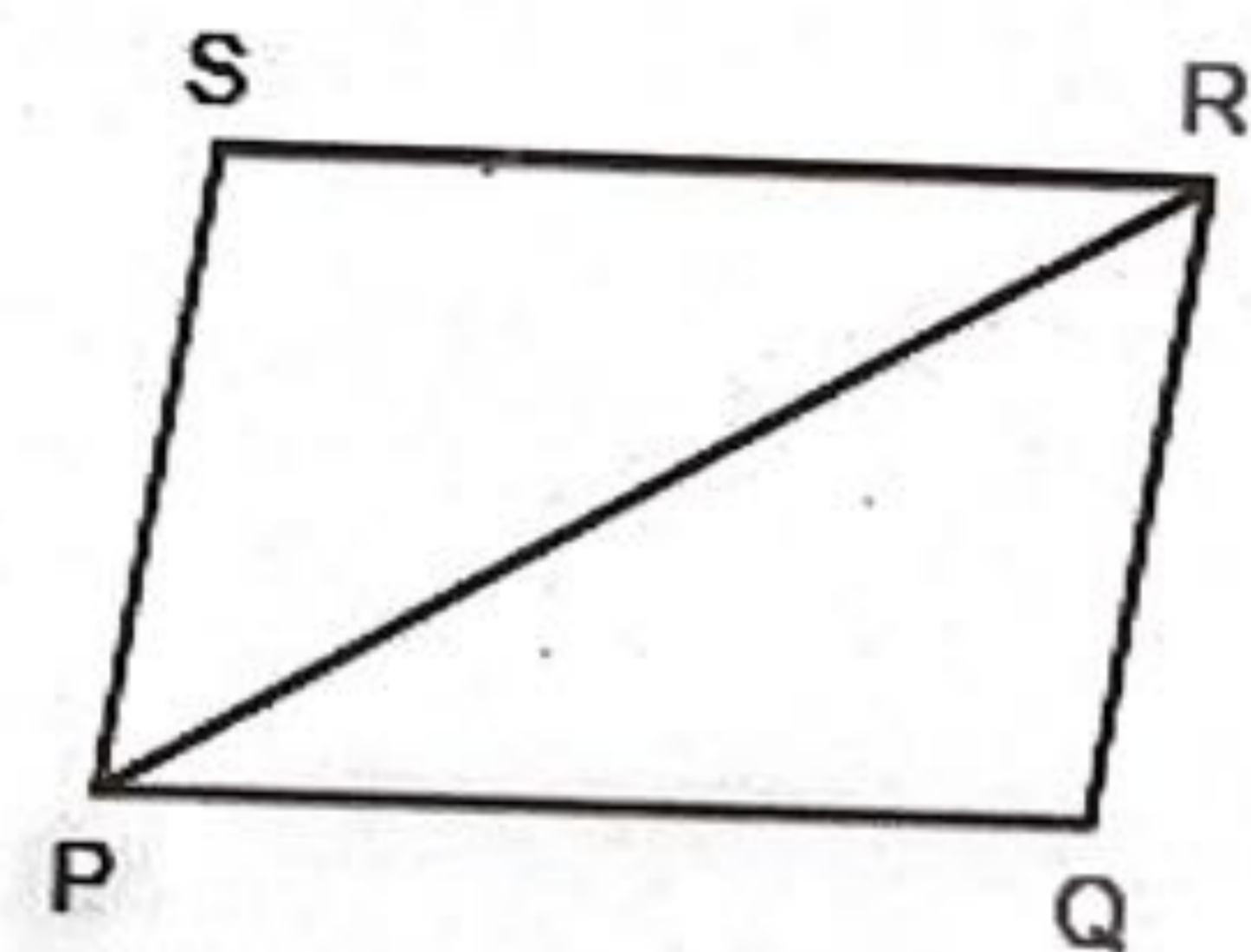
- find the population in 2002
- what would be its population in 2006?

20. Draw a linear graph using the table given below.

Year	2004	2005	2006	2007	2008	2009
Prices (₹)	10	14	16	20	22	24

21. In the given figure PR is a diagonal of the parallelogram PQRS.

- Is $PS = RQ$? Justify.
- Join S and Q. Is $PR = SQ$? Give reason.
- If $\angle S = 80^\circ$, then find the measurement of $\angle Q$?
- Find the measurement of $\angle P$ using information given in part (iii).



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