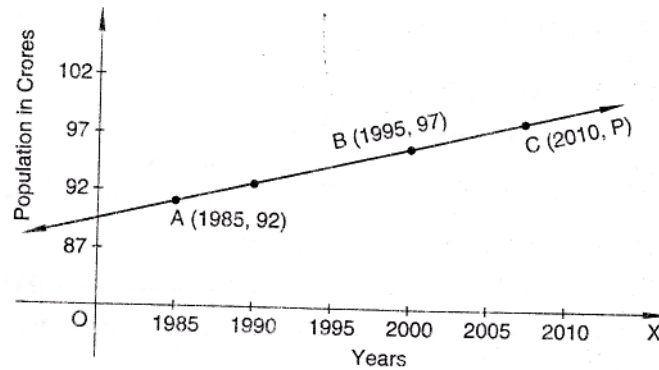


- Q 1. Find the slopes of the lines which make the following angles with the positive direction of x-axis:
- (i) $-\frac{\pi}{4}$ (ii) $\frac{2\pi}{3}$ (iii) $\frac{3\pi}{4}$ (iv) $\frac{\pi}{3}$
- Q 2. Find the slope of a line passing through the following points:
- (i) (-3, 2) and (1,4) (ii) $(at_1^2, 2at_1)$ and $(at_2^2, 2at_2)$ (iii) (3, -5), and (1, 2)
- Q 3. State whether the two lines in each of the following are parallel, perpendicular or neither.
- (i) Through (5, 6) and (2, 3); through (9, -2) and (6, -5)
(ii) Through (9, 5) and (-1, 1); through (3, -5) and (8, -3)
(iii) Through (6, 3) and (1, 1); through (-2,5) and (2,-5)
(iv) Through (3,15) and (16,6); through (-5,3) and (8,2).
- Q 4. Find the slope of a line (i) which bisects the first quadrant angle (ii) which makes an angle of 30° with the positive direction of y-axis measured anticlockwise.
- Q 5. Using the method of slope, show that the following points are collinear
- (i) A (4, 8), B (5, 12), C (9, 28) (ii) A (16, - 18), B (3, - 6), C (- 10, 6)
- Q 6. What is the value of y so that the line through (3, y) and (2,7) is parallel to the line through (-1, 4) and (0, 6)?
- Q 7. What can be said regarding a line if its slope is
- (i) zero (ii) positive (iii) negative?
- Q 8. Show that the line joining (2, - 3) and (- 5, 1) is parallel to the line joining (7, - 1) and (0,3).
- Q 9. Show that the line joining (2, - 5) and (- 2, 5) is perpendicular to the line joining (6, 3) and (1, 1).
- Q 10. Without using Pythagoras theorem, show that the points A (0, 4), B (1,2) and C (3,3) are the vertices of a right angled triangle.
- Q 11. Prove that the points (-4, -1), (-2, -4), (4,0) and (2,3) are the vertices of a rectangle.
- Q 12. If three points A (h, 0), P (a, b) and B (0, k) lie on a line, show that: $\frac{a}{h} + \frac{b}{k} = 1$.
- Q 13. The slope of a line is double of the slope of another line. If tangents of the angle between them is $\frac{1}{3}$, find the slopes of the other line.
- Q 14. Consider the following population and year graph:
Find the slope of the line AB and using it, find what will be the population in the year 2010.



- Q 15. Without using the distance formula, show that points $(-2, -1)$, $(4, 0)$, $(3, 3)$ and $(-3, 2)$ are the vertices of a parallelogram.
- Q 16. Find the angle between the X-axis and the line joining the points $(3, -1)$ and $(4, -2)$.
- Q 17. Line through the points $(-2, 6)$ and $(4, 8)$ is perpendicular to the line through the points $(8, 12)$ and $(x, 24)$. Find the value of x .
- Q 18. Find the value of x for which the points $(x, -1)$, $(2, 1)$ and $(4, 5)$ are collinear.
- Q 19. Find the angle between X-axis and the line joining the points $(3, -1)$ and $(4, -2)$.
- Q 20. By using the concept of slope, show that the points $(-2, -1)$, $(4, 0)$, $(3, 3)$ and $(-3, 2)$ are the vertices of a parallelogram.
- Q 21. A quadrilateral has vertices $(4, 1)$, $(1, 7)$, $(-6, 0)$ and $(-1, -9)$. Show that the mid-points of the sides of this quadrilateral form a parallelogram.

ANSWERS

1. (i) -1 (ii) $-\sqrt{3}$ (iii) -1 (iv) $\sqrt{3}$ 2. (i) $\frac{1}{2}$ (ii) $\frac{2}{t_2 + t_1}$ (iii) $-\frac{7}{2}$
3. (i) parallel (ii) parallel (iii) perpendicular (iv) neither. 4. (i) 1. (ii) $-\sqrt{3}$ 6. 9
7. (i) The line is either x-axis or it is parallel to x-axis.
 (ii) The line makes an acute angle with positive direction of x-axis.
 (iii) The line makes an obtuse angle with the positive direction of x-axis.
13. $1, \frac{1}{2}$ 14. 104.50 crores 16. 135° 17. 4 18. 1 19. $\frac{3\pi}{4}$