

STRAIGHT LINE GRAPHS QUESTIONS

1. Find the length of the line segments joining these two points
 - (a) (2, 5) and (7, 17)
 - (b) (16, 10) and (1, 2)
 - (c) (-3, 2) and (1, -1)

2. Show that the triangle formed by the points (3, -2), (4, 7) and (1, -2) is not isosceles.

3. The points A with coordinates (-6, -3) and B with coordinates (-3, -7) lie on a circle. Find the length of the chord AB.

4. Find the coordinates of the mid-points of the line segments joining these pairs of points.
 - (a) (2, 11) and (6, 15)
 - (b) (-2, -3) and (1, -6)
 - (c) (a, b) and (3a, 5b)

5. M(5, 7) is the mid-point of the line segment joining A(3, 4) to B. Find the coordinates of B.

6. A(1, -2), B(6, -1), C(9, 3) and D(4, 2) are the vertices of a parallelogram. Verify that the mid-points of the diagonals AC and BD coincide.

7. Show that the points (3, 1), (-3, -7) and (11, -5) form an isosceles triangle. Find the mid-point of the side which is not one of the equal sides.

8. Find the gradients of the lines joining the following pairs of points.
 - (a) (3, 8), (5, 12)
 - (b) (1, -3), (-2, 6)
 - (c) (-4, -3), (0, 1)
 - (d) (-5, -3), (3, -9)

9. Find the gradients of the lines AB and BC where A is (3, 4), B is (7, 6) and C is (-3, 1). What can you deduce about the points A, B and C?

10. The points A, B, C and D have coordinates (2, 3), (-3, 11), (4, -2) and (1, 8) respectively. Is AB parallel to CD?

11. The gradient of the line joining (1, 3) to (x, 7) is $\frac{2}{3}$. Find x.

12. Find the equations of the straight lines through the given points with the gradients shown. Your final answers should not contain any fractions.
 - (a) (2, 3), gradient 5.
 - (b) (0, 4), gradient $\frac{1}{2}$.
 - (c) (0, 0), gradient -3.
 - (d) (-5, -1), gradient $-\frac{3}{4}$.
 - (e) (-3, -1), gradient $\frac{3}{8}$.
 - (f) (2, -1), gradient -2.

STRAIGHT LINE GRAPHS SOLUTIONS

1.

- (a) 13
- (b) 17
- (c) 5

2. Proof that the length of the sides are all different.

3. 5

4.

- (a) (4, 13)
- (b) $(-\frac{1}{2}, -4\frac{1}{2})$
- (c) (2a, 3b)

5. (7, 10)

6. Proof that the mid points are the same.

7. (4, -6)

8.

- (a) 2
- (b) -3
- (c) $\frac{1}{2}$
- (d) $-\frac{3}{4}$

9. $\frac{1}{2}, \frac{1}{2}$. The points are collinear (they lie on a straight line)

10. No

11. $x = 7$.

12.

- (a) $y = 5x - 7$
- (b) $2y = x + 8$
- (c) $y = -3x$
- (d) $4y = -3x - 19$
- (e) $8y = 3x + 1$
- (f) $y = -2x + 3$