05. Co-ordinate Geometry

1. Find distance between the two points and

Answer:

* Use distance formula
* Solution:

1. Find the coordinates of point of intersection of two lines given by the equation:

and

Answer:

* Solve as simultaneous equations
* 2 equations 2 variables
* ;
* Solution:

1. Find the equation of a line whose slope is and which passes through the point

Answer:

* substituting the point
* {multiply both sides with to get rid of the }
* Solutions:

1. A line with slope intersects -axis. A point lies on the same line. Find the point of intersection between the given line and the -axis

Answer:

* Find the equation of line by using the same process in Question
* for intersection with axis
* Solution:

1. Line intersects -axis at A and -axis at B. If is and is , find the equation of the line

Answer:

* Slope of the line
* Same as in question , substitute the point in equation to find c (y intercept)
* Solution:

1. Find the slope of line passing through and having -intercept .

Answer:

* points are given, &
* Same as question
* Solution:

1. What kind of quadrilateral is formed by the vertices

Answer:

* Draw -> not a square; not a rhombus
* Find slopes
* Both opposite slopes are equal -> cannot be a trapezium
* Adjacent slopes are not perpendicular (does not follow m1m2 = -1) -> cannot be a rectangle
* Solution: **Parallelogram**

1. A and B are the vertices of an equilateral triangle . What are the co-ordinates of ?

Answer:

* Draw and use triangle ratios
* Solution:

1. The co-ordinates of the vertices of A and B are and respectively. What is the area of the square ?

Answer:

* Since, is a side of the square
* (use distance formula)
* Solution:

1. If points , and are collinear. Find the co-ordinate of

Answer:

* Since they lie on the same line Slope = Slope
* 1 equation 1 variable
* Alternatively, you can find equation of a line using points & and plug in the point in equation of line to find ‘’
* Solution:

1. If and are two of the vertices of a rectangle, which of the following could not be another of the vertices?

Answer:

* Draw and check all options
* Solutions:

1. What are the co-ordinates of the point on the graph of that has equal co-ordinates?

Answer:

* Equal co-ordinates:
* 2 equations 2 variables
* Solution:

1. Find the equation of the line having a slope of passing through the point

Answer:

* Same as Question
* Solution:

1. The vertices of triangle are , and . The area of the triangle is

Answer:

* Draw (to identify the triangle as Isosceles right-angle triangle)
* Solution: **8**

1. Find the equation of a straight line passing through and parallel to the straight line

Answer:

* Slope and point given, same as question 4
* Solution:

1. A triangle has three vertices , and . If it is a right-angle triangle, find the area of the triangle

Answer:

* Draw to identify base and height
* Solution:

1. Find the equation of the line passing through the points and .

Answer:

* Same as question 5.
* Solution:

1. Find the equation of a straight line which passes through the origin and whose angle with -axis is

Answer:

* Solution:

1. The co-ordinates of the vertices of quadrilateral are , , and respectively. Find the area of quadrilateral .

Answer:

* Draw (to identify the quadrilateral as a parallelogram)
* Solution: **32**

1. What is the product of the slope of the sides of a rectangle, if none of the sides is parallel to any of the axes?

Answer:

* In rectangle adjacent side are perpendicular to each other
* The product of slopes of first set of perpendicular line:
* The product of slopes of second set of perpendicular line:
* Total Product:
* Solution:

1. If line l has equation: and line is perpendicular to it which of the following is always true of line ?

Answer:

* Slope of k is -1/5
* Solution: **k has a negative slope**

1. Line is given by the equation , and line r is given by the equation . If line intersects the -axis at point , line intersects the -axis at point , and both lines intersect the -axis at point , what is the area of triangle ?

Answer:

* Find the co-ordinates of both line by substituting x=0 for y co-ordinate and vice versa
* Get those 4 co-ordinates plot them on graph
* By area of triangle formula which is
* Solution: **56**

1. The graphs of and in the -plane can intersect in at most how many points?

Answer:

* The lines are parallel with different y intercepts
* Solution: **0**

1. In the given figure, ABCDEF is a regular hexagon. What is the slope of FE?

Answer:

* Use triangle ratios
* Solution: