

Name:

Date:

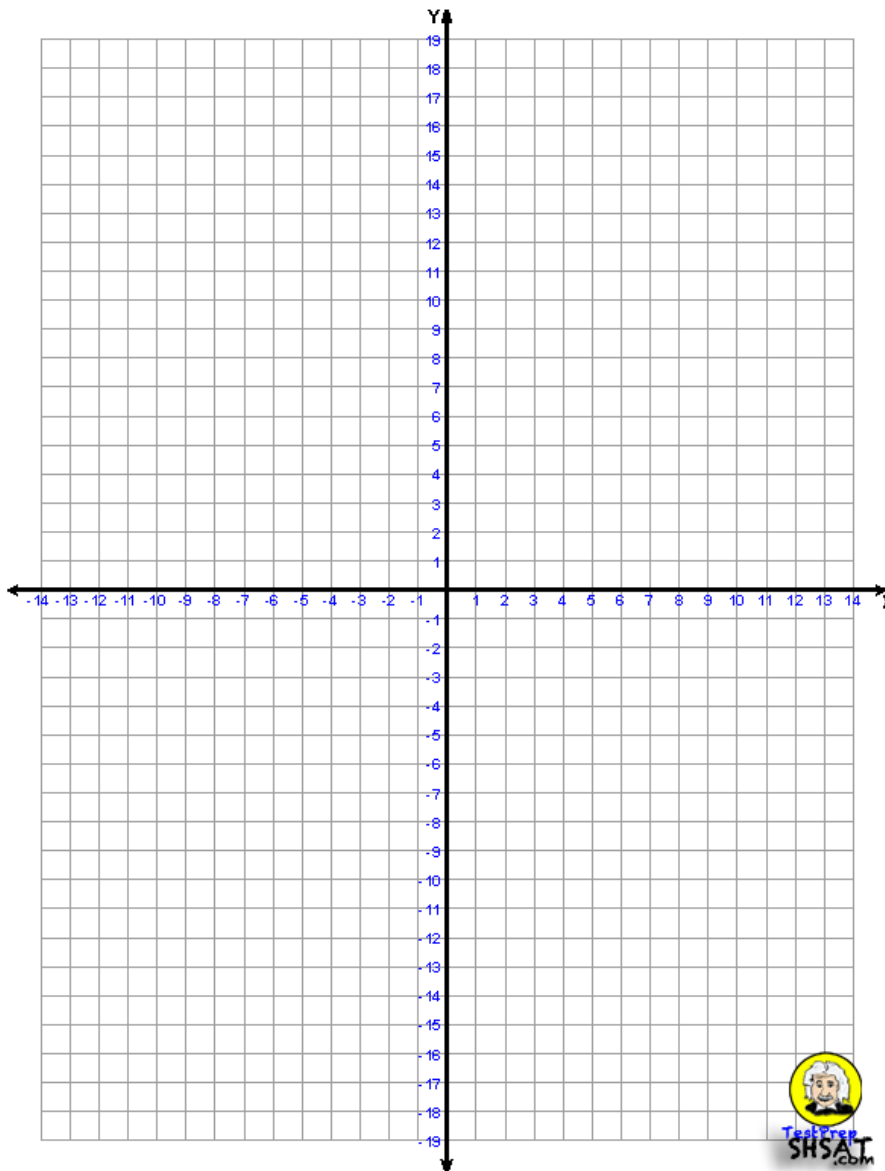
WORKSHEET :



Coordinate Plane

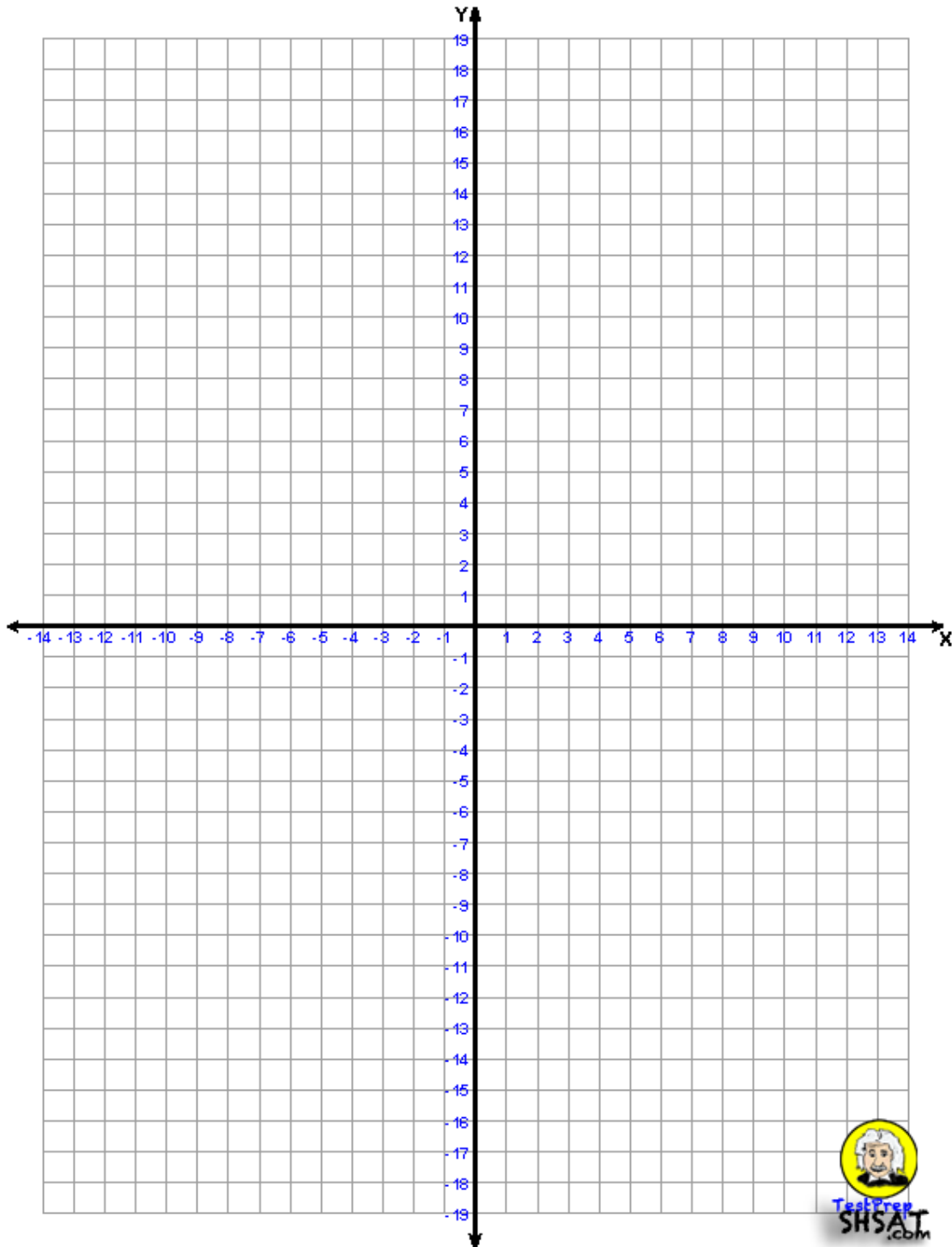
1. Mark the following ordered pairs:

A(0,0) B(10,10) C(-10,-10) D(-10,10) E(10,-10)



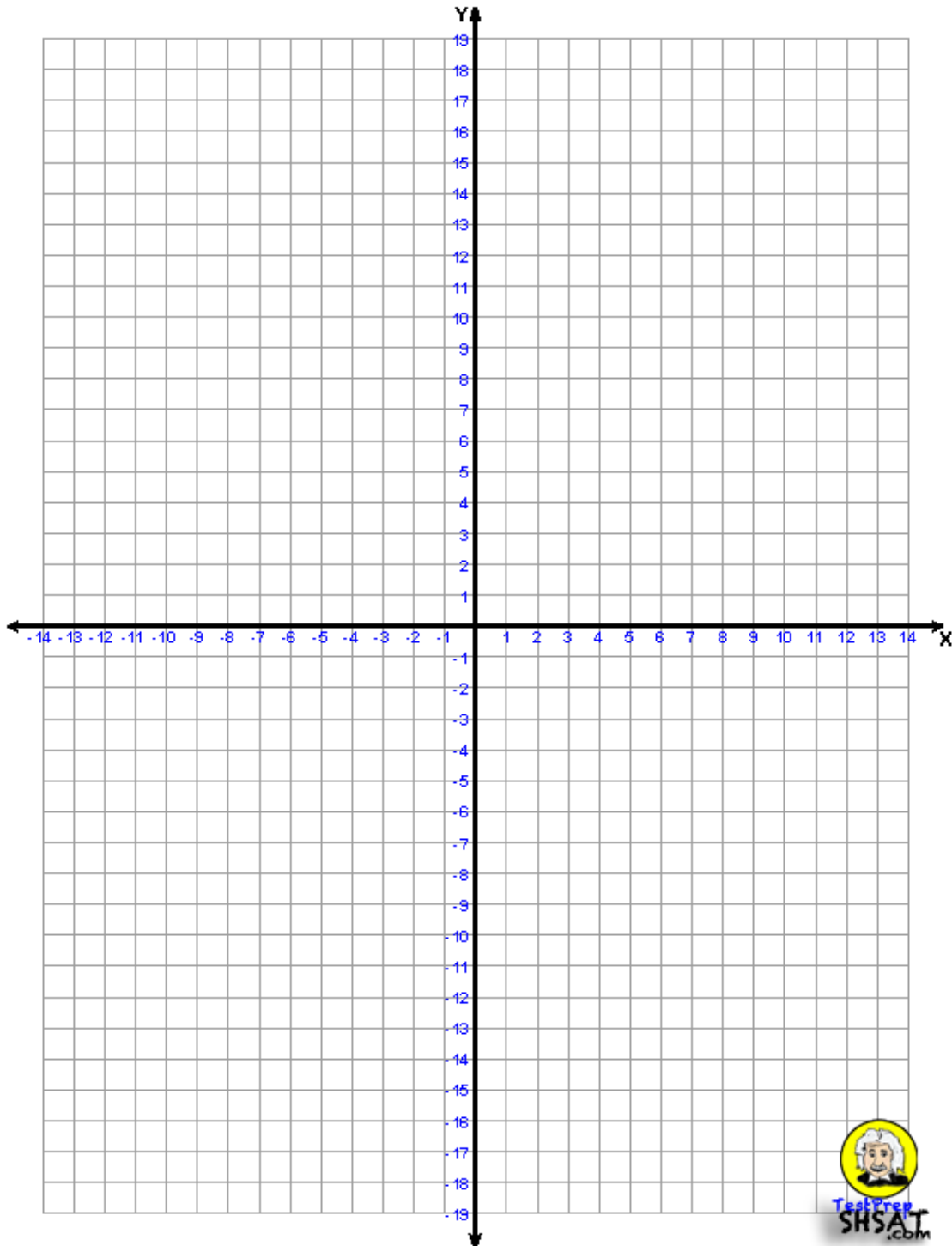
2. Mark the following ordered pairs:

A(0,15) B(10,0) C(0,0)



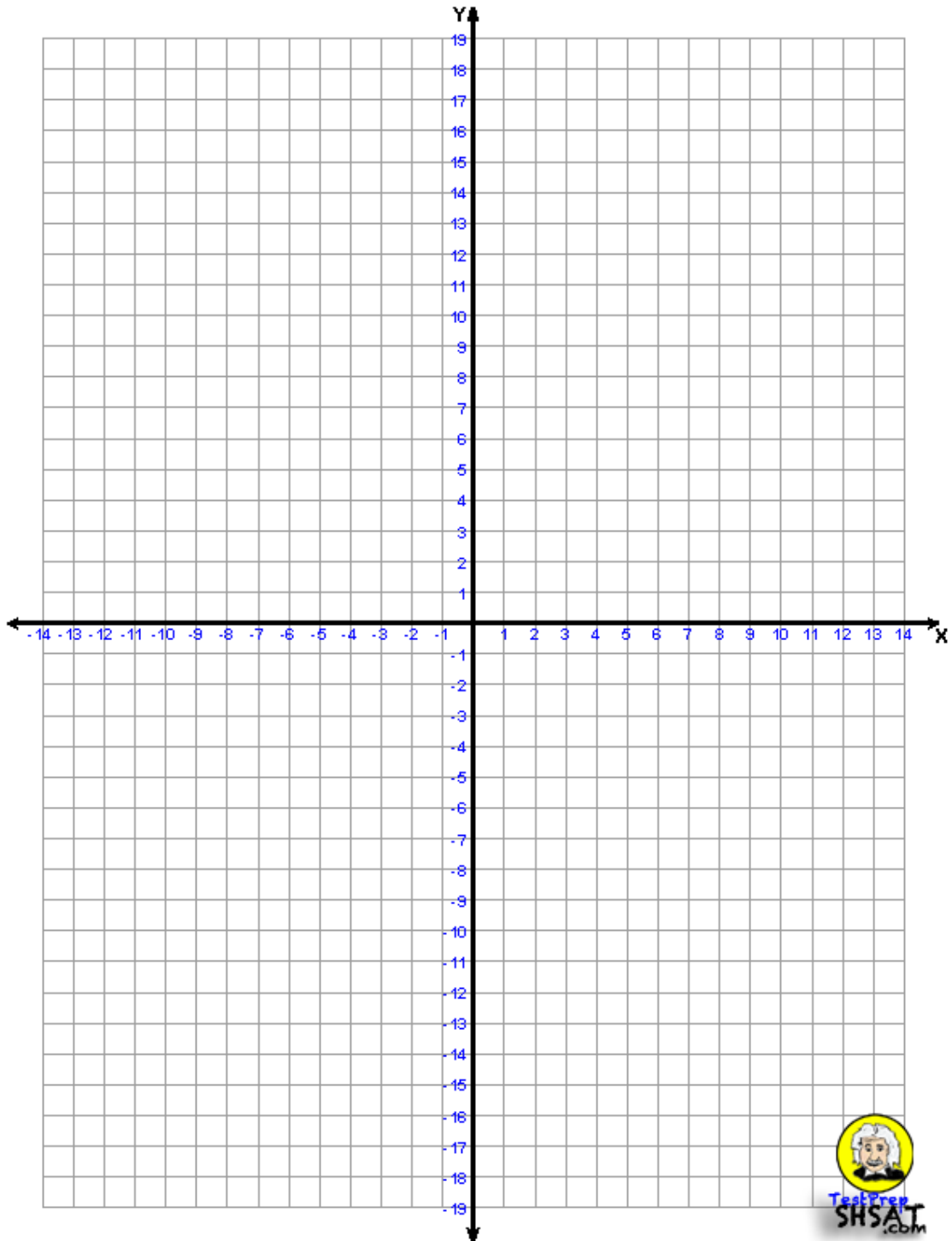
3. Mark the following ordered pairs:

A(5,15) B(15,0) C(5,0)



4. Mark the following ordered pairs:

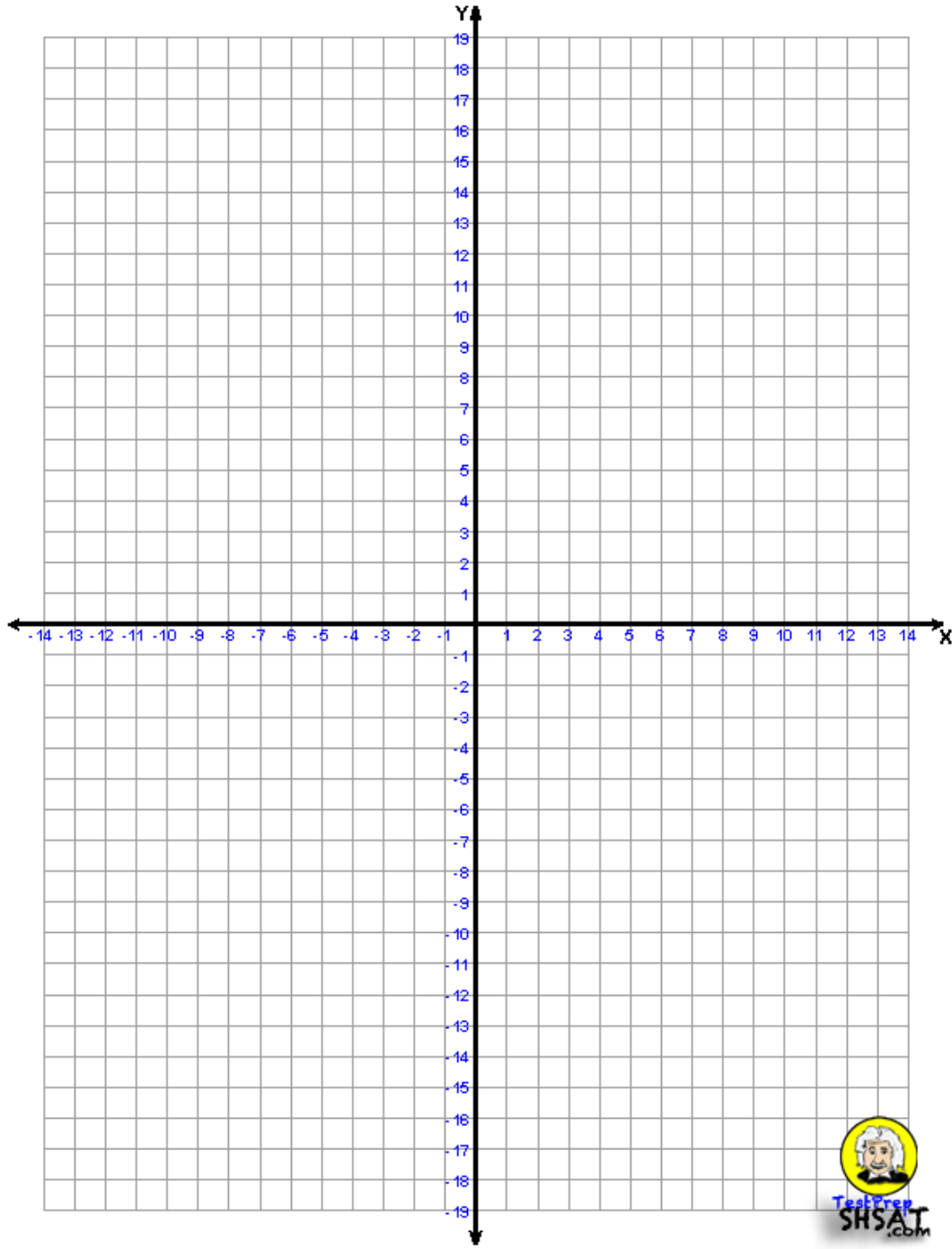
A(5,20) B(15,5) C(5,5)



5. Mark the following ordered pairs and draw a line between them:

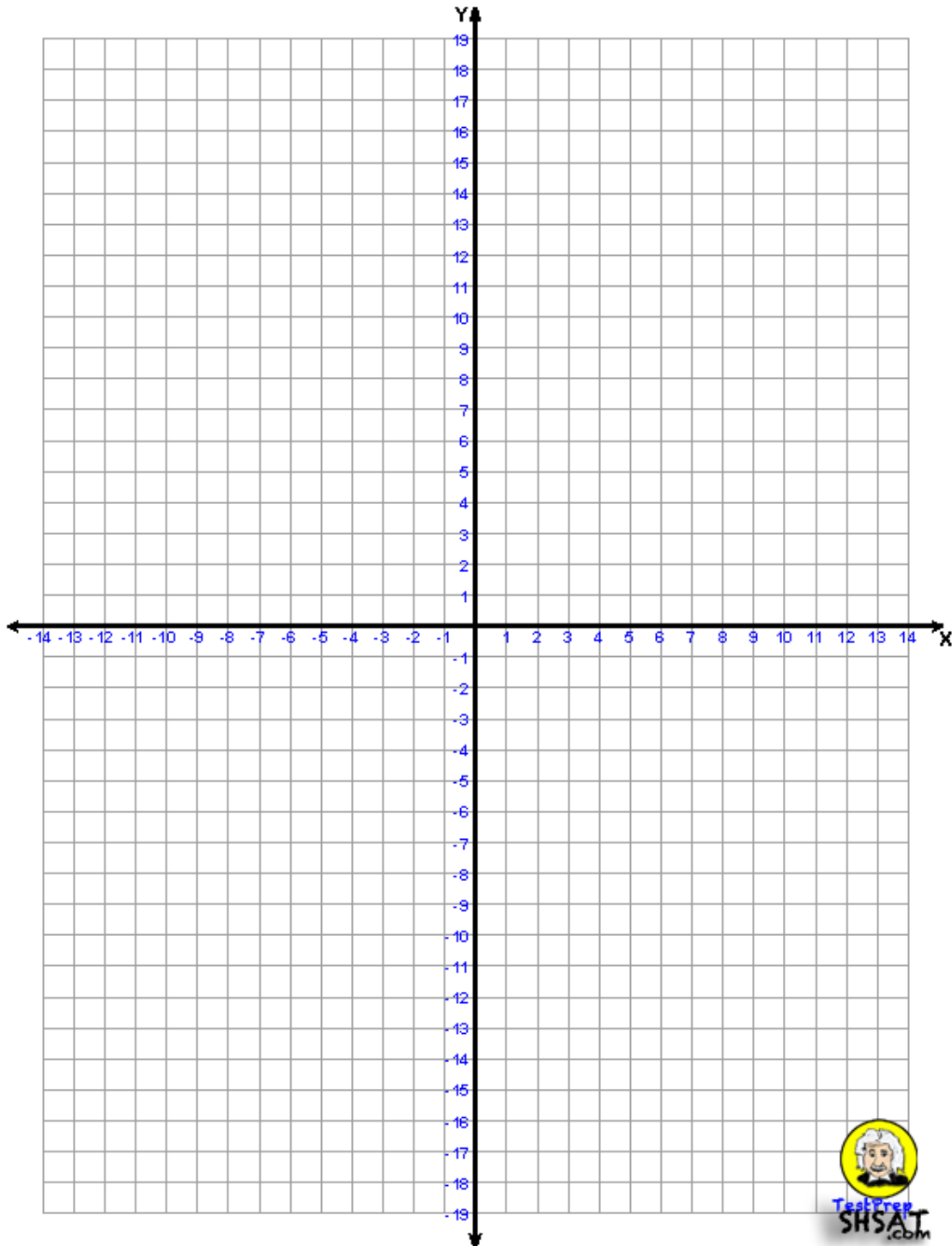
A(5,20) B(-20,5)

$m = \text{Slope} = \text{Rise/Run} = (y_2 - y_1)/(x_2 - x_1)$ What is the slope of this line?



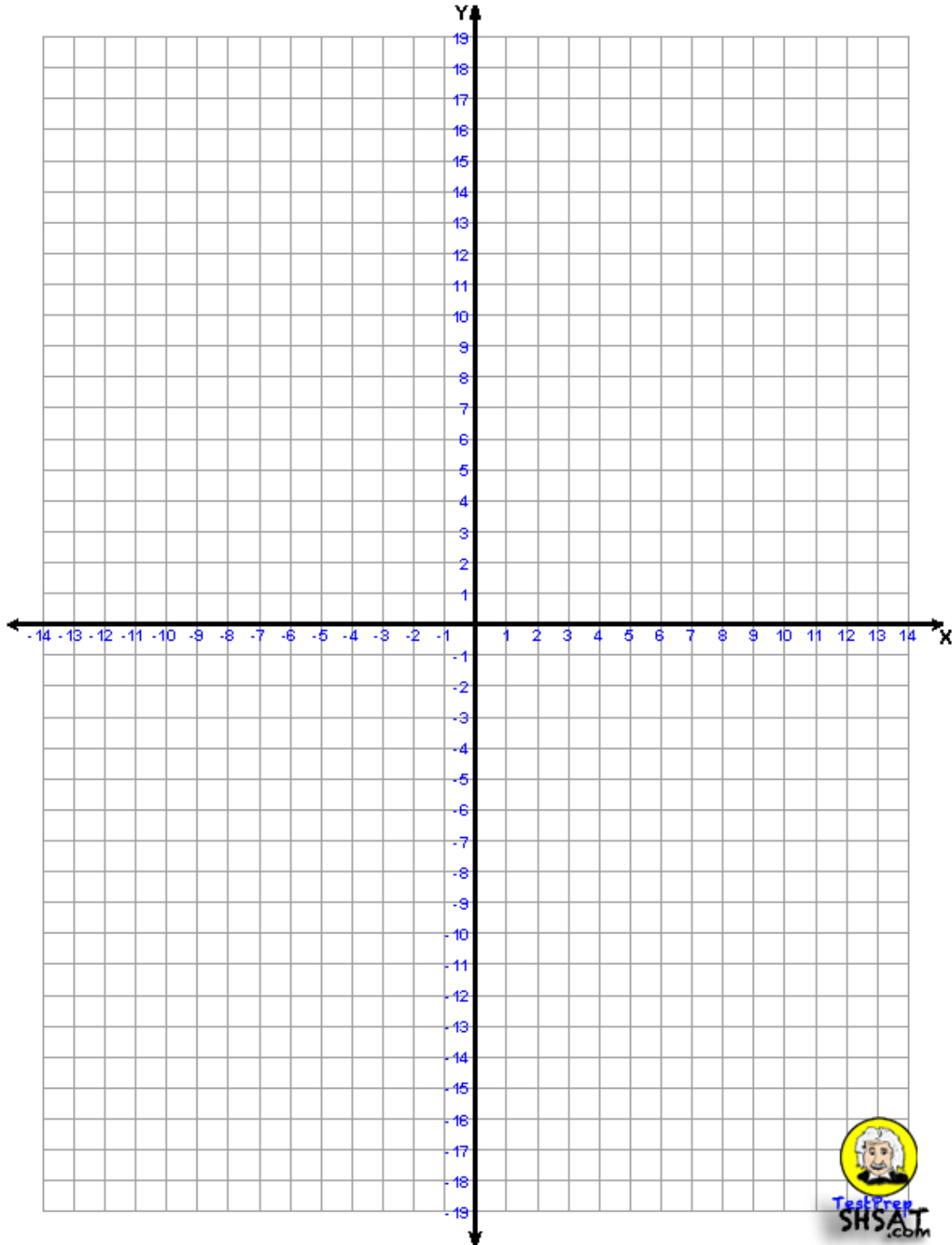
6. Draw lines with the following slopes.

- a) zero b) undefined c) positive d) negative e) $+1/2$ f) $+2$ g) -3



7. Mark the following ordered pairs and draw a line between them:
A(5,20) B(-20,5)

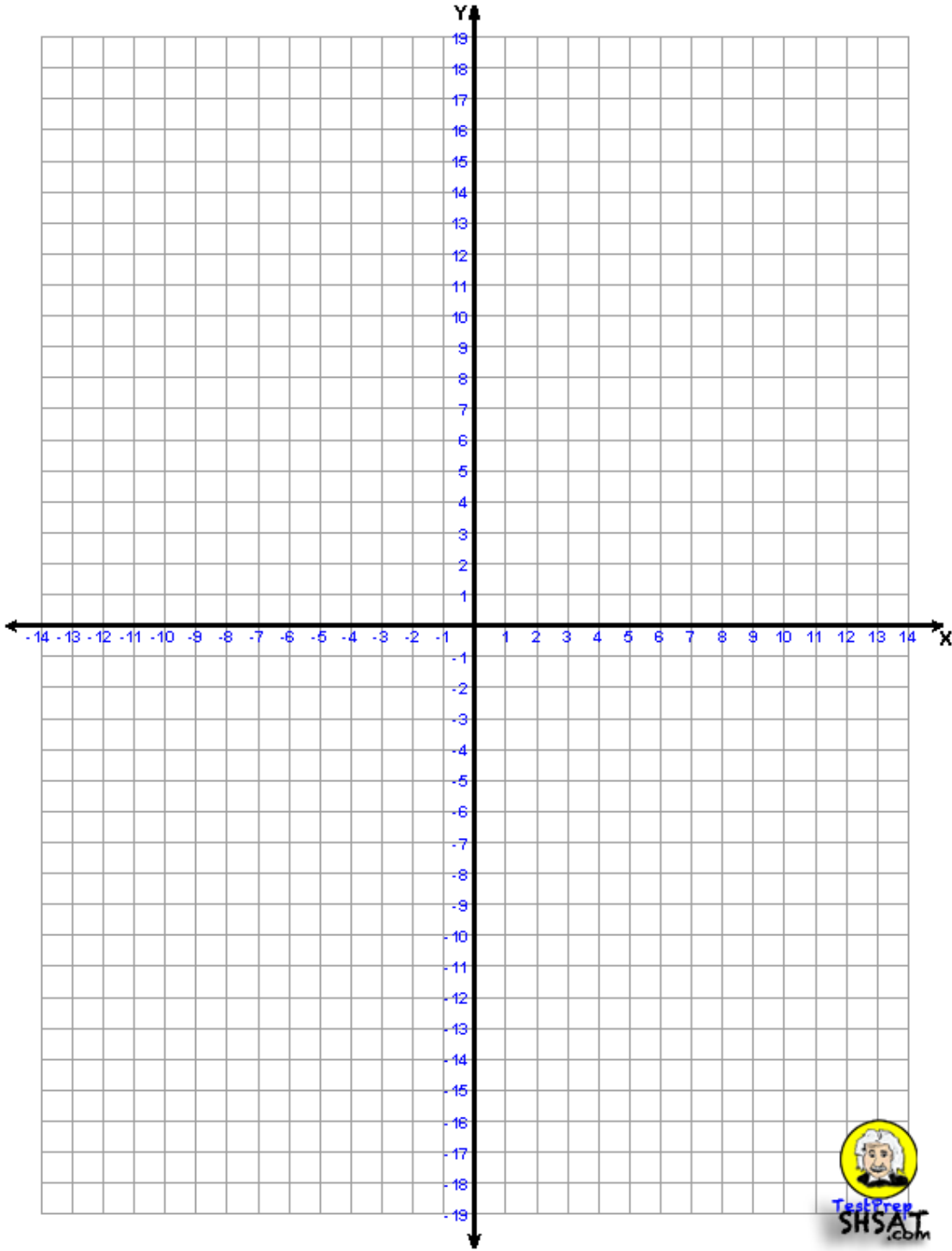
Midpoint = (average of x, average of y) = $(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$ What is the midpoint of this line segment? Graph it.



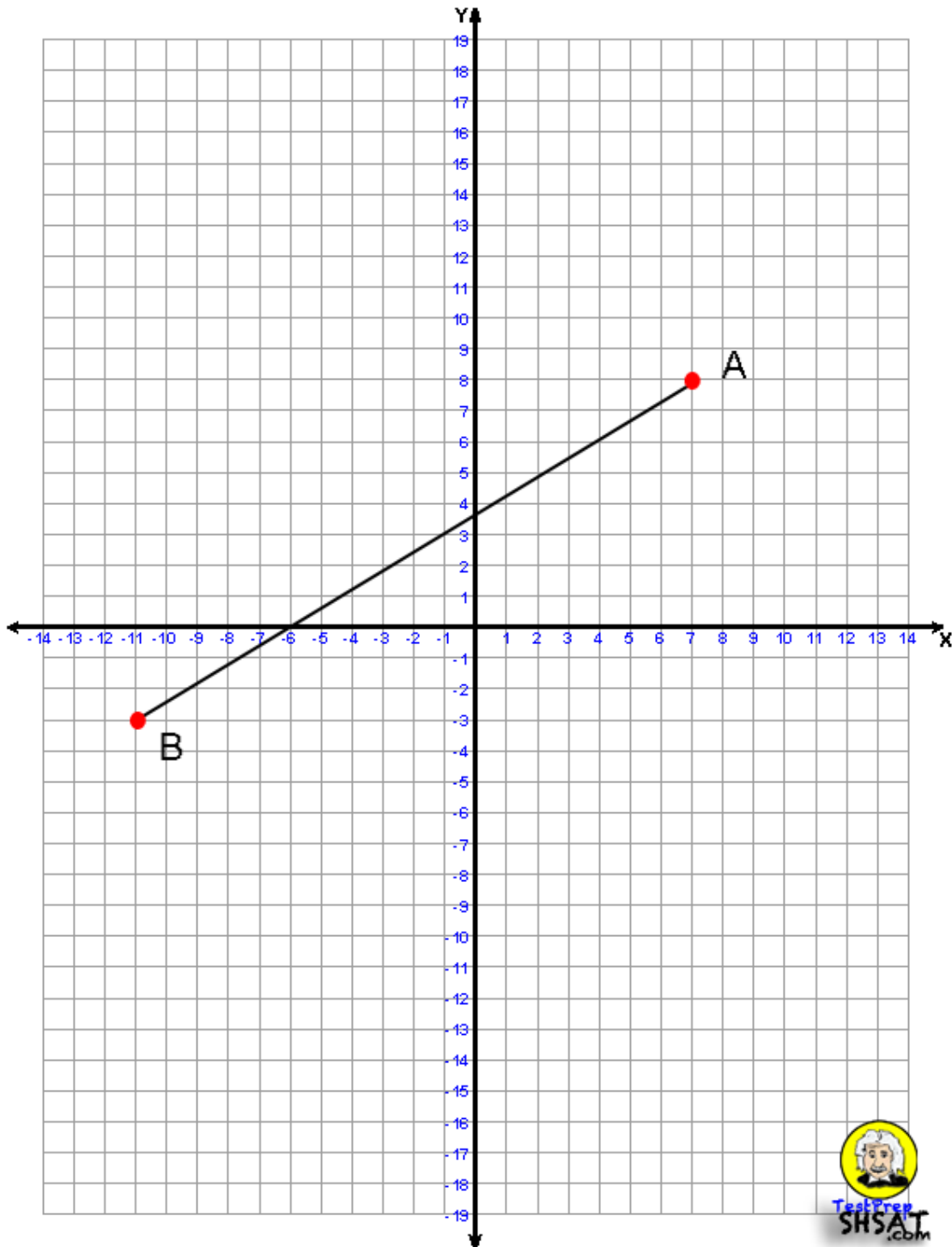
8. Mark the following ordered pairs and draw a line between them.

A(5,20) B(-20,5)

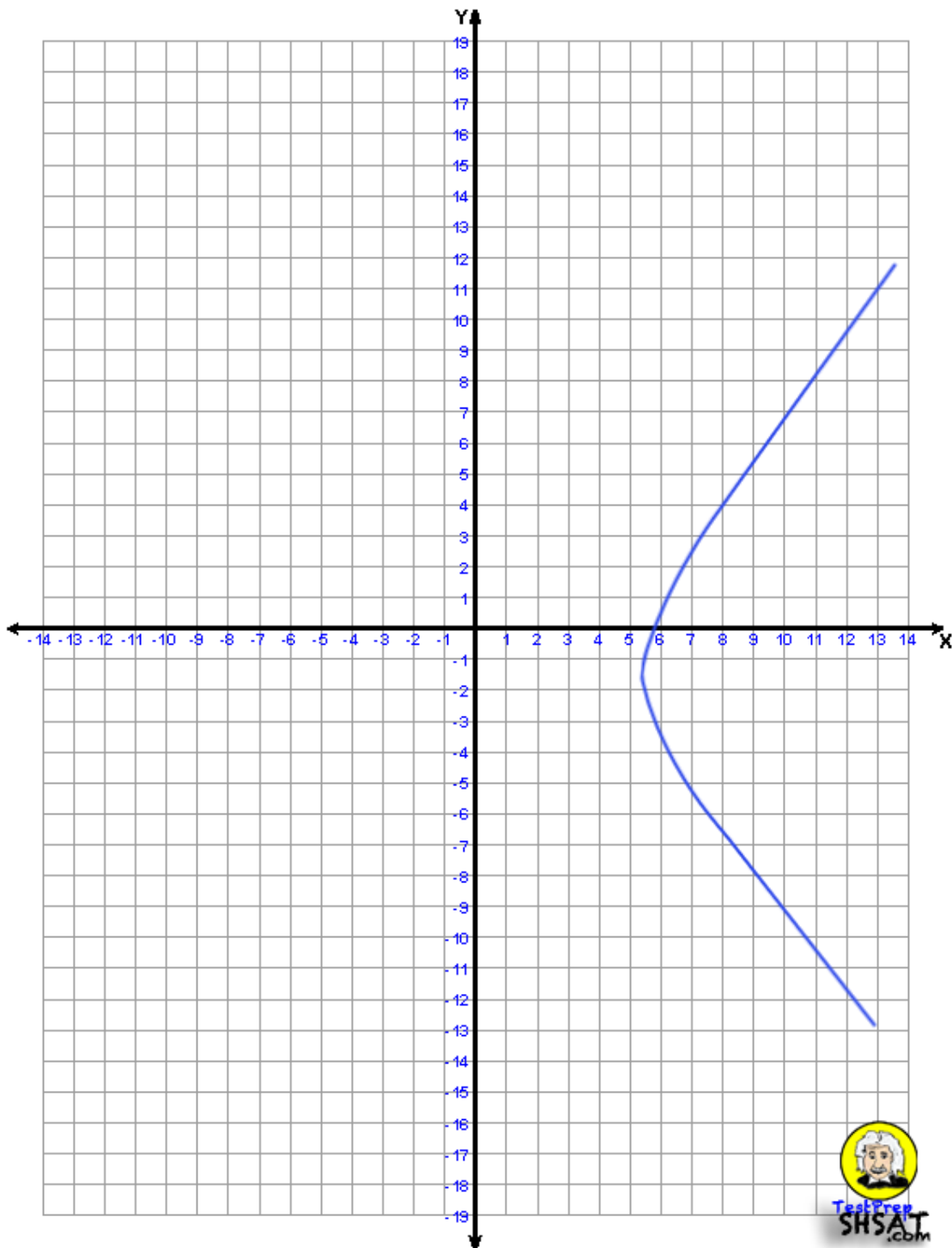
Distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ What is the length of this line segment?



9. A function takes one or many inputs and produces only one output. The following diagram shows a line segment AB. Is the line segment a function?



10. A function takes one or many inputs and produces only one output. Is the following graph a function?

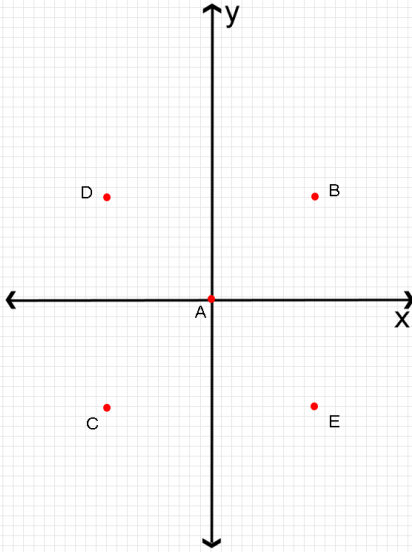


ANSWERS :

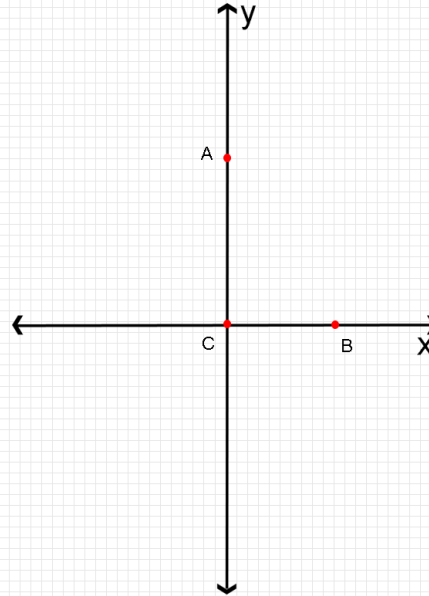


Coordinate Plane

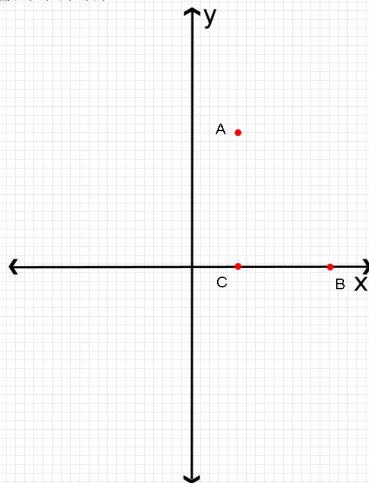
1. Mark the following ordered pairs: (assume each gridline is 1 unit)
A(0,0) B(10,10) C(-10,-10) D(-10,10) E(10,-10)



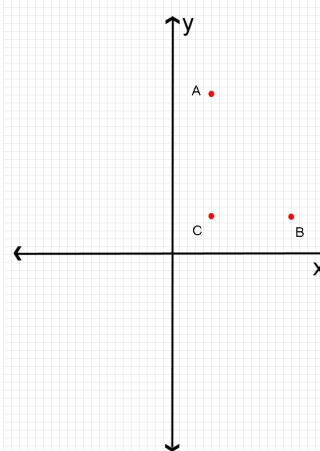
2. Mark the following ordered pairs: (assume each gridline is 1 unit)
A(0,15) B(10,0) C(0,0)



3. Mark the following ordered pairs: (assume each gridline is 1 unit)
A(5,15) B(15,0) C(5,0)

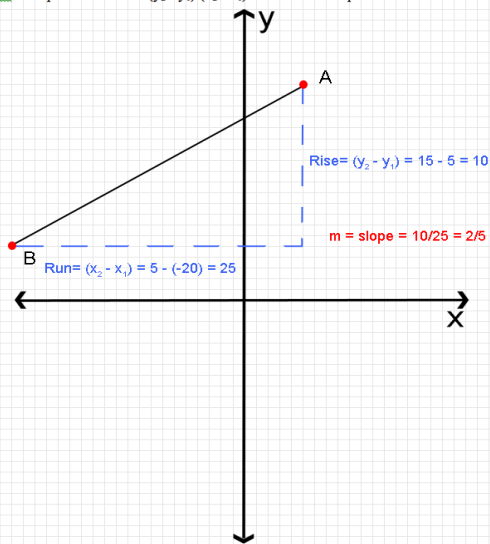


4. Mark the following ordered pairs: (assume each gridline is 1 unit)
A(5,20) B(15,5) C(5,5)

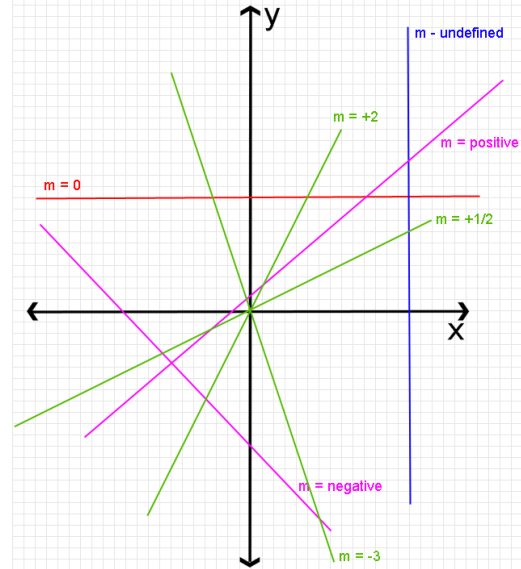


5. Mark the following ordered pairs and draw a line between them: (assume each gridline is 1 unit)
 A(5,20) B(-20,5)

$m = \text{Slope} = \text{Rise}/\text{Run} = (y_2 - y_1)/(x_2 - x_1)$ What is the slope of this line?

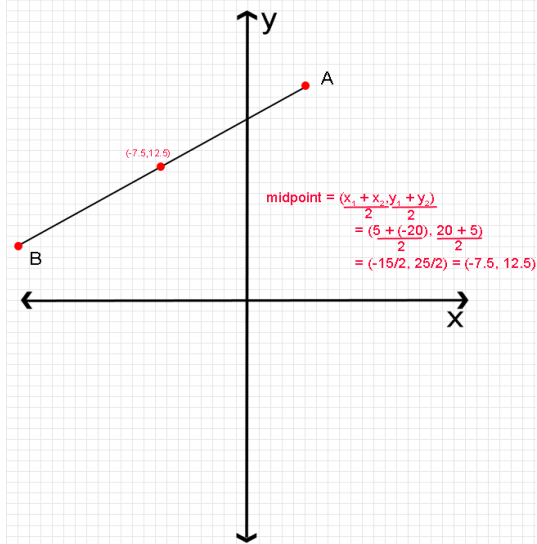


6. Draw lines with the following slopes. a) zero b) undefined c) positive d) negative e) $+1/2$ f) $+2$ g) -3



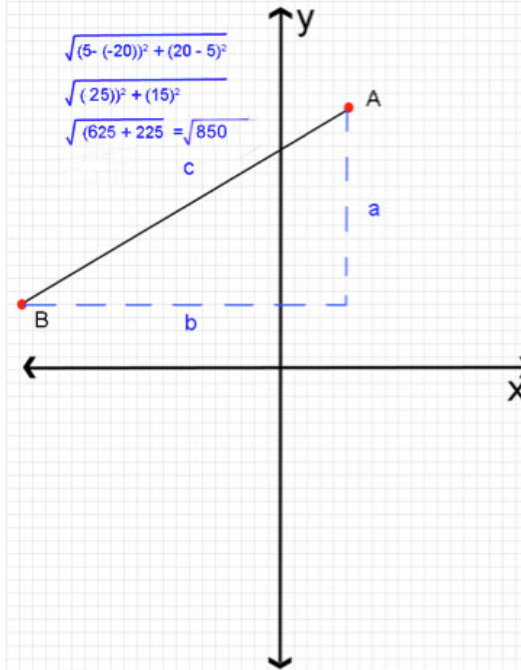
7. Mark the following ordered pairs and draw a line between them: (assume each gridline is 1 unit)
 A(5,20) B(-20,5)

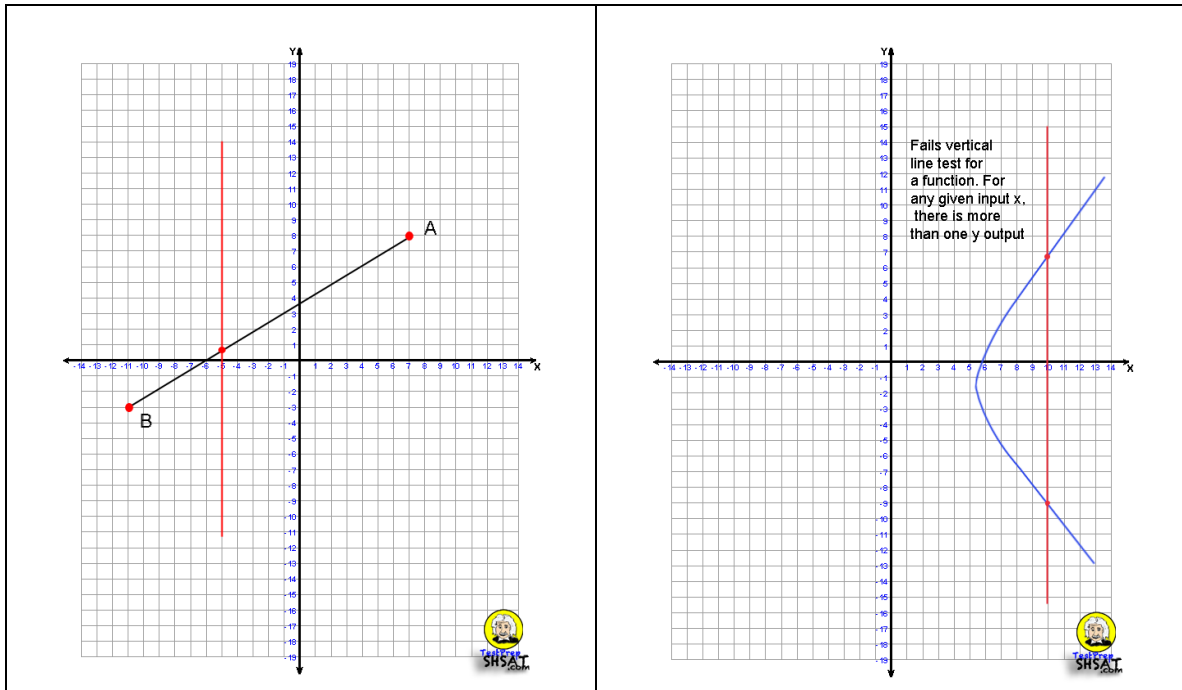
Midpoint = (average of x, average of y) = $(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$ What is the midpoint of this line segment? Graph it.



8. Mark the following ordered pairs and draw a line between them: (assume each gridline is 1 unit)
 A(5,20) B(-20,5)

Distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ What is the length of this line segment?





KEY CONCEPTS:

Learn the basics of plotting coordinate pairs on the xy -axis of the coordinate plane and related skills.

1. The xy -axis is two perpendicular number lines across a two dimensional plane whose origin is defined as the intersection of the two number lines (or axes) at point $(0, 0)$.
2. Understand how to plot coordinate pairs on the correct point in either of four quadrants based on the sign and value of the x and y coordinate values.
3. Develop a sense of translation of points and shapes in the coordinate plane.
4. Any two points on a coordinate plane form a line segment.
 - a. Develop the concept of slope which is the vertical change divided by the horizontal change or rise over run.

$$m = \text{Slope} = \text{Rise/Run} = (y_2 - y_1)/(x_2 - x_1)$$

b. Understand how to find a midpoint between two points. i.e. the average of the x coordinates and the y coordinates form the midpoint x, y coordinate pair.

$$\mathbf{Midpoint = (average\ of\ x,\ average\ of\ y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)}$$

c. Learn to calculate the distance between any two points in the coordinate plane.

$$\mathbf{Distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}}$$

Conceptually, the distance formula is the same as the Pythagorean Theorem where the distance between two points is the hypotenuse of a right triangle formed by the y coordinates and the x coordinates.

$$\mathbf{c^2 = a^2 + b^2}$$

$$\mathbf{c = \sqrt{a^2 + b^2}}$$

5. A function takes one (or many inputs) and outputs one result.
- $y = f(x)$ is a function if there is only one y result for every x result
 - Many to one is still a function, but...
 - One to many is not a function.
 - Graphically the vertical line test will identify a function. If every vertical line intersects the diagram at only one point then it is a function. i.e. one y for one x. If a vertical line can be made to intersect two or more points on the graph then it is not a function.