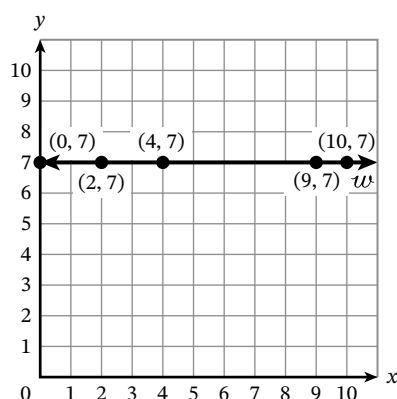


FAMILY MATH

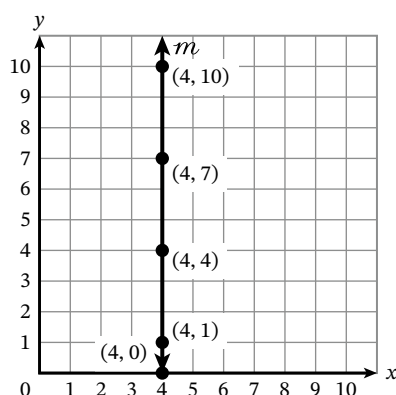
Patterns in the Coordinate Plane

Dear Family,

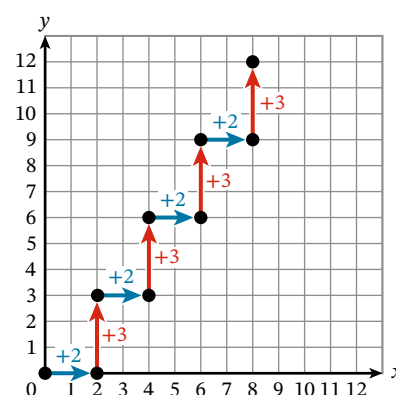
Your student is exploring number patterns in the coordinate plane. They analyze the coordinates of points that lie on horizontal or vertical lines. They use rules to find coordinates of points and look for relationships between the points' locations. They also look for addition, subtraction, multiplication, and division patterns between coordinates. Work with patterns in the coordinate plane supports your student in later grades when they graph and analyze lines.



Students see that all points on a horizontal line have the same y -coordinate (in this case, 7) because the points are the same distance from the x -axis.



Students see that all points on a vertical line have the same x -coordinate (in this case, 4) because the points are the same distance from the y -axis.



Students learn to see patterns in the distance between points on the coordinate plane. Those patterns are consistent changes in the x -coordinates and the y -coordinates.

At-Home Activities

What's My Line?

Give your student two sets of ordered pairs with either the same x -coordinate or the same y -coordinate, such as (2, 5) and (2, 8) or (3, 4) and (6, 4). Ask your student to determine whether points with these coordinates would lie on the same horizontal line or on the same vertical line. Have them think of the coordinates of other points that would also lie on that line. Challenge them to see whether they can think of coordinates of points that would be above and below the line if it is a horizontal line, or to the left and right of the line if it is a vertical line.

That's the Point!

Make a life-size coordinate plane and help your student play with patterns. Use masking tape or sidewalk chalk to make a large coordinate plane that your student can stand on or place objects on. You could also use a tile floor. If you have enough space, make the grid 12 units by 12 units. Otherwise, make the grid as large as possible.

- Have your student stand at the origin $(0, 0)$. Choose two numbers between 1 and 6 to create a coordinate pair. The first number represents the x -coordinate, and the second number represents the y -coordinate.
- Have your student place an object on the grid where the coordinate lies. For example, if the numbers are $(3, 4)$, your student should move 3 units to the right of $(0, 0)$ and 4 units up on the grid.
- Ask your student to find the next point by doubling the coordinates to form a new coordinate pair. Then have your student place another object where the new coordinate lies. For example, if the first object is at $(3, 4)$, they would place the next object at $(6, 8)$.