Math 9 – Unit 6: Coordinate Geometry

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Lesson #1: The Coordinate Plane

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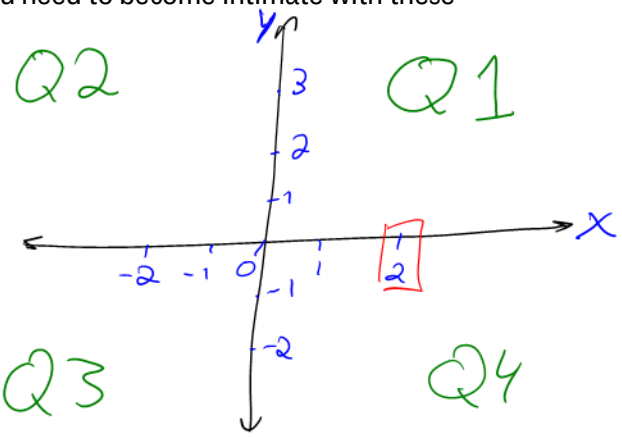
Learning Goal: We are learning how to use the coordinate grid system.

In this chapter and the next, we will learn a lot of new vocabulary. You need to become intimate with these words, so let's first define them, then draw/label them!



Coordinate Plane

- it is a grid, made up of two number lines, cross at their zeros.

Quadrants

4

- the 4 corners of the coordinate plane

x-axis

- the horizontal # line

y-axis

- the vertical # line

x-coordinate

- the value/spot on the x-axis
  - → this is just a number

y-coordinate

- the value/spot on the y-axis

Ordered Pair

2 things → 2 things in order

- the x and y coordinate paired together written as (x, y) ex: (2, -3)

called a point

Origin

- the ordered pair (0, 0)

Example 1: **Graph the following points on the given grid.**

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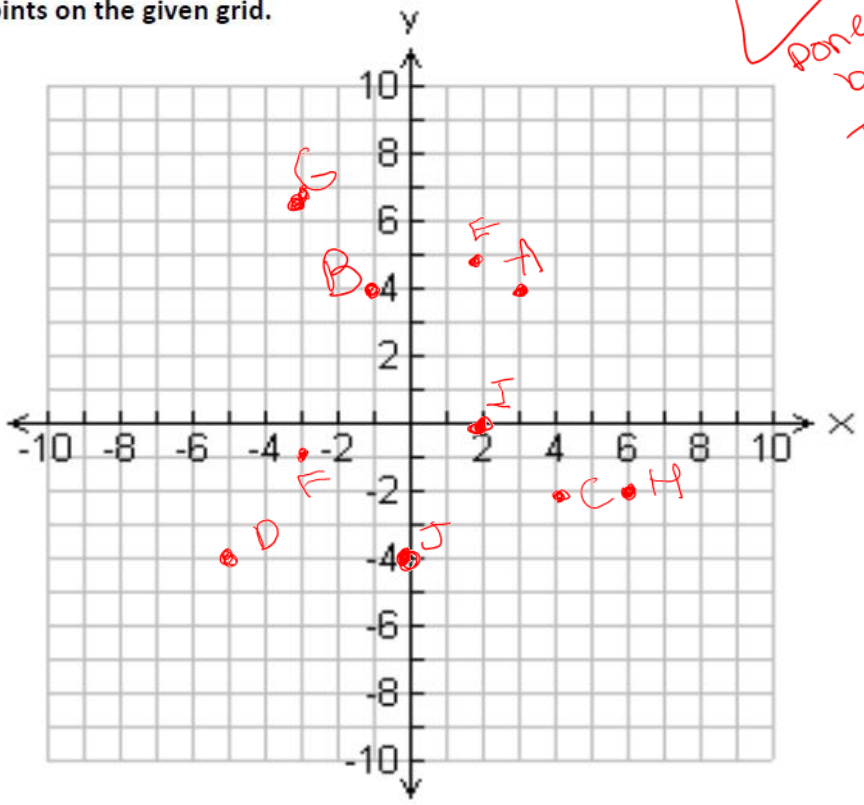
A (3 , 4) B (-1, 4)

C (4, -2) D (-5, -4)

E (2, 5) F (-3, -1)

G (-3, 7) H (6, -2)

I (2 , 0) J (0 , -4)



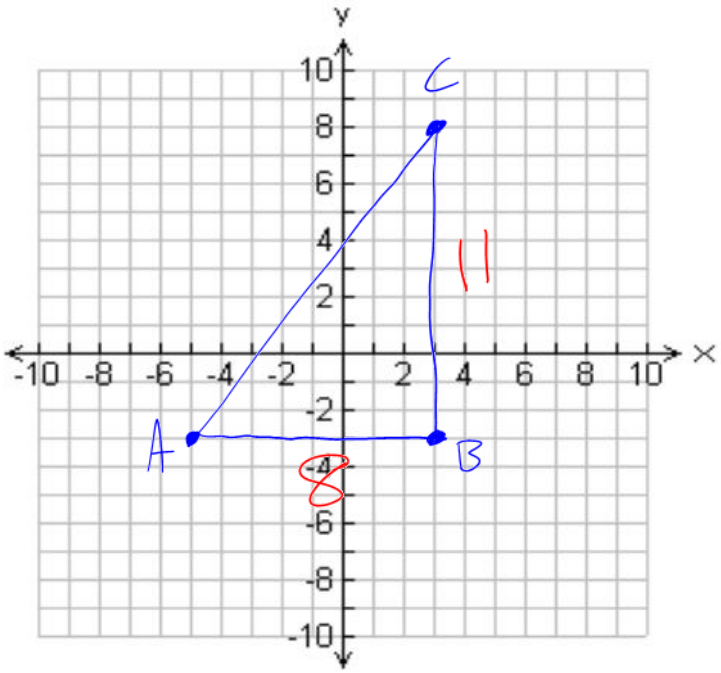
Example 2: **Calculate the area of a triangle with vertices at A(-5,-3), B(3,-3), and C(3,8)**

Step 1: Plot the points and connect the points to form a triangle

Step 2: Find the length of the base and height

$b = 8$

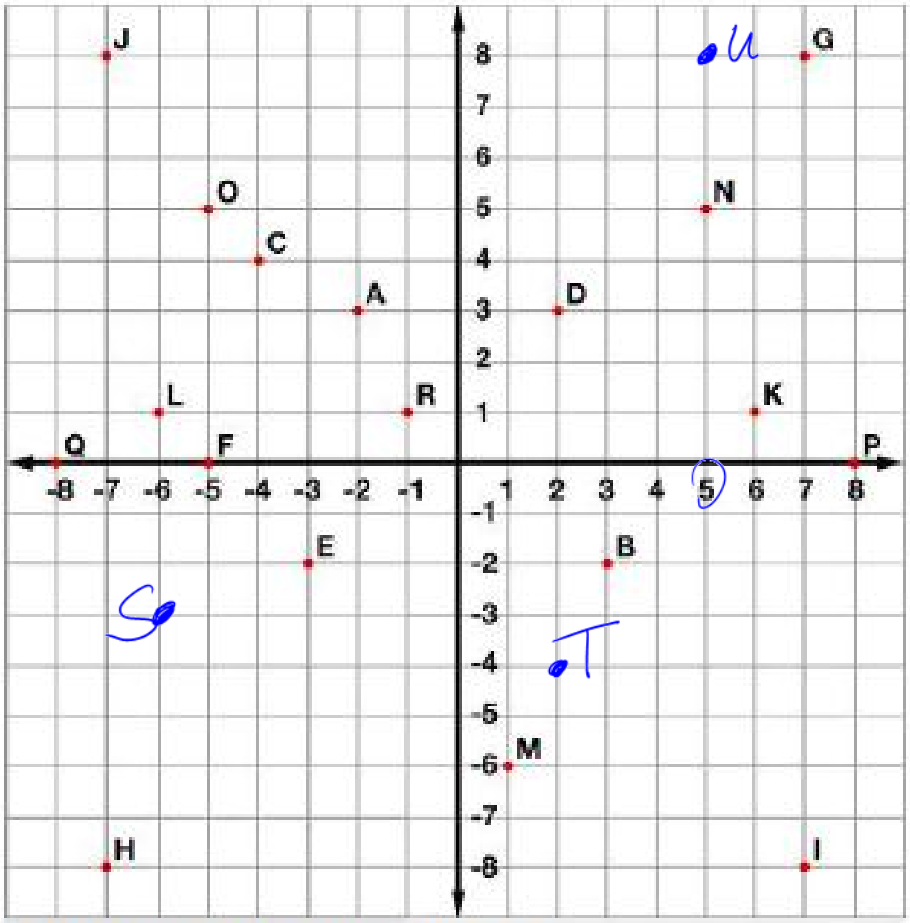
$h = 11$



Step 3: Calculate the area

$A = \frac{bh}{2} = \frac{8 \times 11}{2} = 44 u^2$

units



Tell what point is located at each ordered pair.

1. **(3,-2)** B
2. **(2,3)** D
3. **(-5,5)** O
4. **(-7,-8)** H
5. **(-4,4)** C
6. **(-5,0)** F

Write the ordered pair for each given point.

7. **E** (-3,-2)
8. **M** (1,-6)
9. **P** (8,0)
10. **G** (7,8)
11. **Q** (-8,0)
12. **N** (5,5)

Plot the following points on the coordinate grid.

13. **S (-6,-3)**
14. **T (2,-4)**
15. **U (5,8)**

Success Criteria:

- I can define the important key terms that are used in the coordinate grid system
- I can tell the difference between the "x" and "y" coordinates in an ordered pair
- I can find an ordered pair on a coordinate grid