Math 9 – Unit 6: Coordinate Geometry

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Lesson #1: The Coordinate Plane

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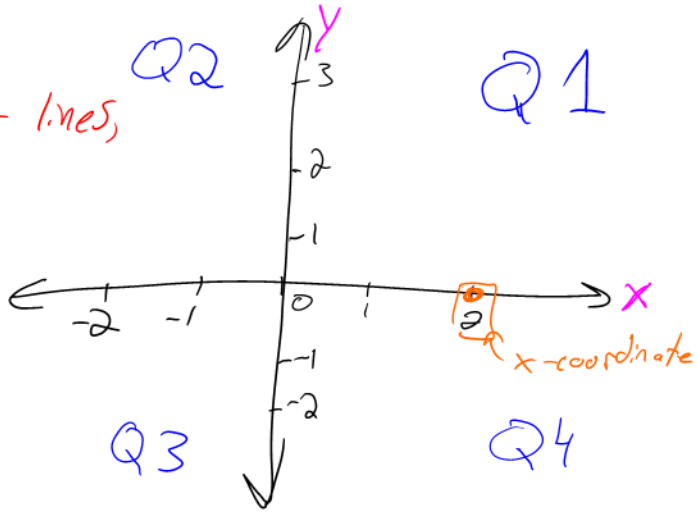
Learning Goal: We are learning how to use the coordinate grid system.

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

Quadrants (4)
- the corners of the coordinate plane.

x-axis
- the horizontal # line

y-axis
- the vertical # line

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

y-coordinate
- the value/spot/# on the y-axis

Ordered Pair
- ↳ two thing
  - ↳ there is a set way to write it.

the x and y coordinates paired together, written as (x, y)

ex: (2, -3)

Origin
- the ordered pair (0, 0)

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

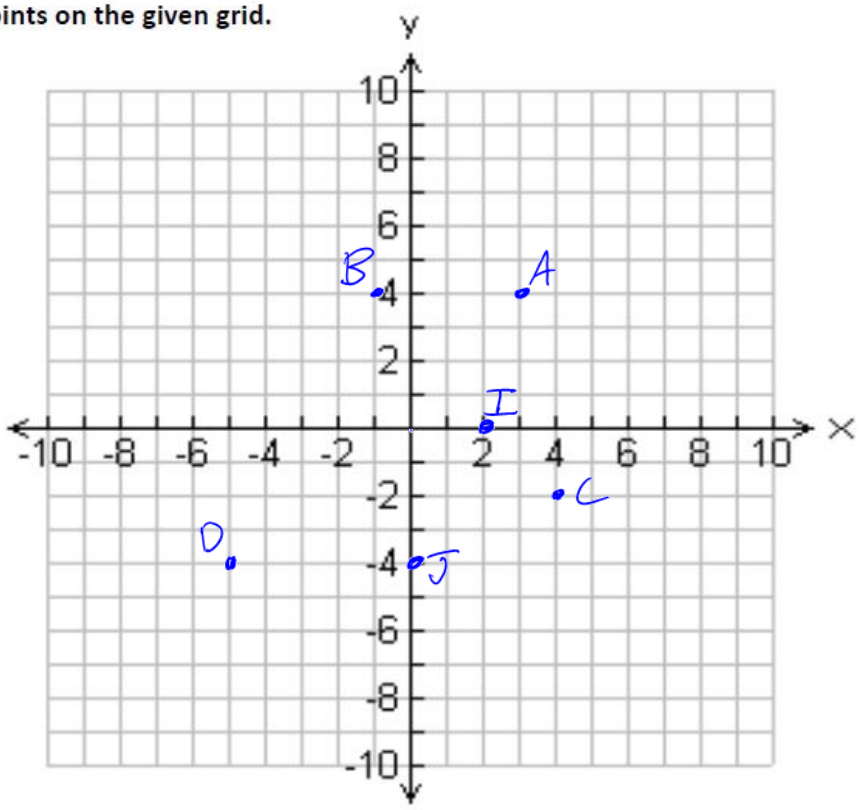
A (3 , 4) B (-1, 4)

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

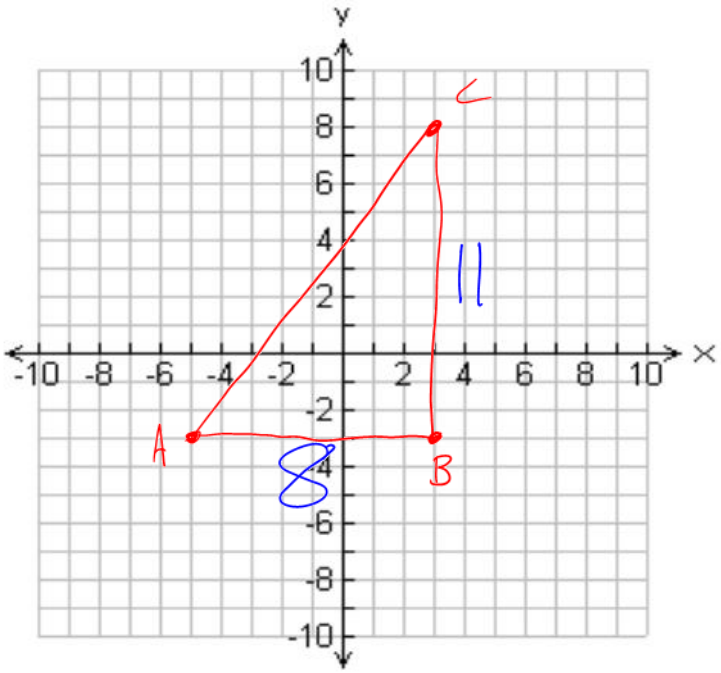
Step 2: Find the length of the base and height

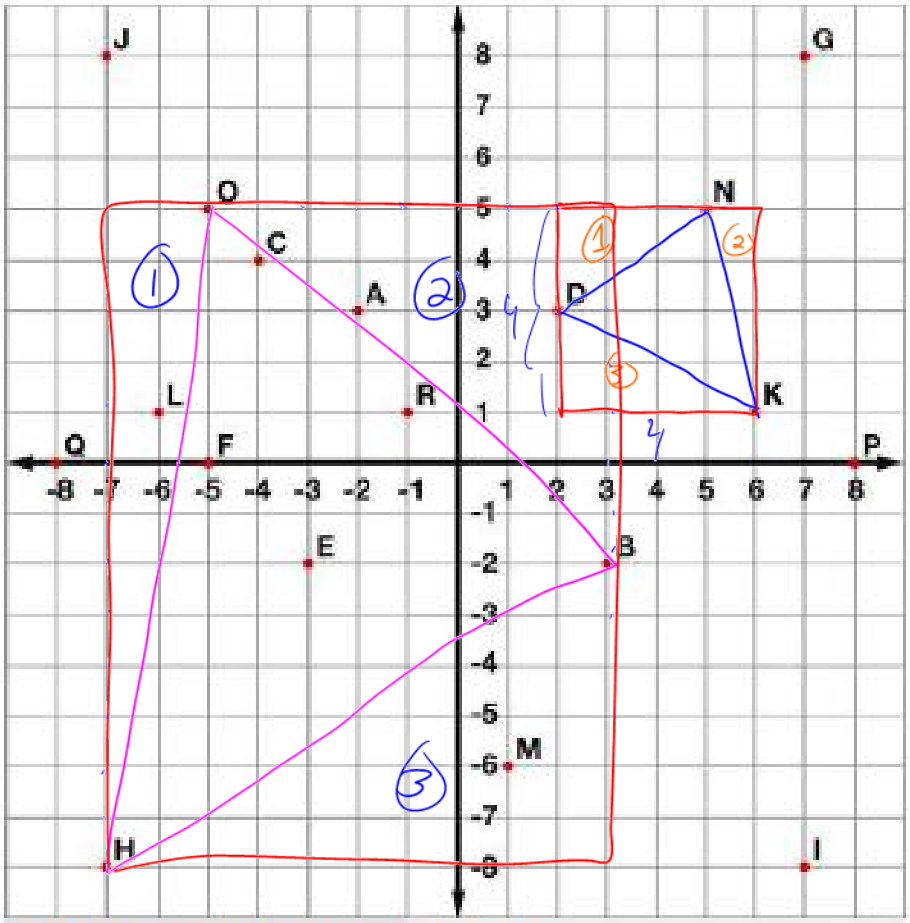
$A = \frac{bh}{2}$

$A = \frac{8 \times 11}{2}$

$A = 44 \text{ units}^2$

Step 3: Calculate the area





$A_{\square} = 10 \times 13 = 130$

$A_1 = \frac{2 \times 13}{2} = 13$

$A_2 = \frac{8 \times 7}{2} = 28$

$A_3 = \frac{6 \times 10}{2} = 30$

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$\therefore A_{\triangle} = 59 u^2$

$A_D = 4^2 = 16$

$A_1 = \frac{2 \times 3}{2} = 3$

$A_2 = \frac{1 \times 4}{2} = 2$

$A_3 = \frac{2 \times 4}{2} = 4$

9

$A_{\triangle} = 16 - 9 = 7 u^2$

Tell what point is located at each ordered pair.

1. (3,-2) B
2. (2,3) D
3. (-5,5) O
4. (-7,-8) _____
5. (-4,4) _____
6. (-5,0) _____

Write the ordered pair for each given point.

7. E (-3,-2)
8. M _____
9. P _____
10. G _____
11. Q _____
12. N _____

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