

Unit 14

Cartesian Coordinates and Graphing with Intercepts

Math Essentials

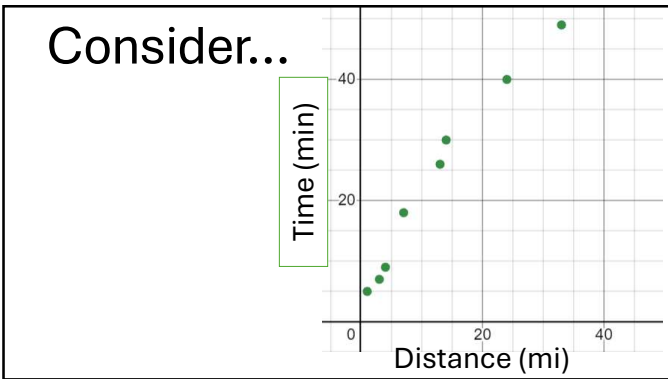
1

Consider...

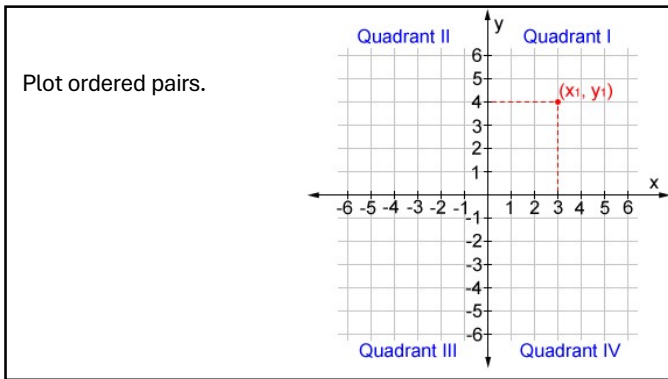
- The following table records the distance students live from school, along with the amount of time it takes them to get there. How could we display this data to know what it means?

Distance from school (mi)	1	3	4	7	12	13	24	33
Commute time (min)	5	7	9	18	26	30	40	49

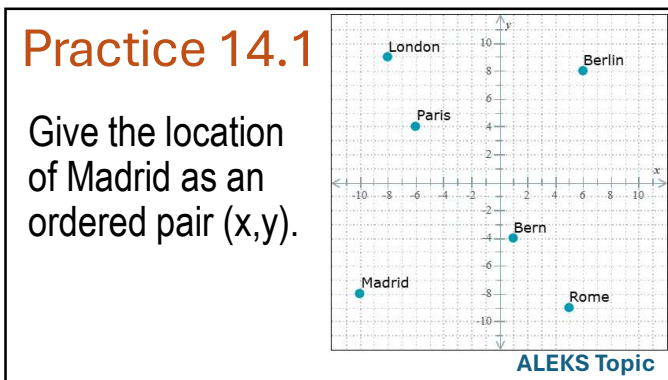
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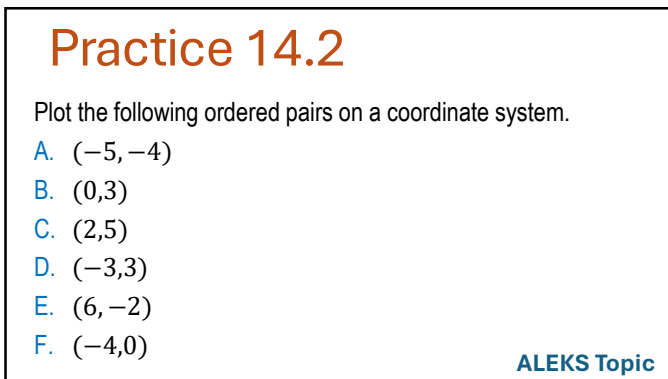
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4



5



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Practice 14.3

Fill in the table using this function rule.

$$y = -2x - 3$$

x	y
-4	<input type="text"/>
-2	<input type="text"/>
0	<input type="text"/>
2	<input type="text"/>

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Practice 14.4

Consider the equation $2x + 3y = 12$.

- Can you think of any ordered pairs (values for x and y) that could be substituted to make this equation true?
- Plot them on a graph.
- What do you notice?
- How many possible solutions exist?

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Practice 14.5

Graph the lines.

1. $y = x$

2. $y = 3x - 5$

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Linear Equations

- The equation $2x + 3y = 12$ is a **first-degree equation** because all the variables are to the first power.
- The graph of any 1st-degree equation in two variables is a **STRAIGHT LINE**.

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Practice 14.6

Graph the lines.

1. $y = 7$
2. $x = 7$

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Practice 14.7

Draw a graph to help solve the equation. Then find the solution to the equation.

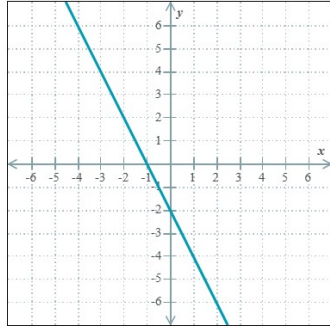
$$3x - 9 = 0$$

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Practice 14.8

Find the x-intercept and the y-intercept.



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Practice 14.9

Graph the line whose y-intercept is 4 and whose x-intercept is -9.

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Practice 14.10

Consider the following equation

$$2x - 4y = 12.$$

- What is the x-intercept?
- What is the y-intercept?

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Let $y=0$ to find the **x-intercept**.

Let $x=0$ to find the **y-intercept**.

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Practice 14.11

Find the x-intercept and y-intercept of the line.

- $x - 2y = 6$
- $-3x + 2y = 4$

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You **only need 2 points** to draw a line.

Two useful points are the **x- and y-intercepts**, where the graph crosses the x- and y-axes.

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Practice 14.12

Find the intercepts and graph the equation.

1. $4x - y = -3$
2. $2y - x = 0$
3. $8x + 4y = 20$
4. $x = 1$
5. $y = -2$

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