See this page in the course material.

What you'll learn to do: Graph linear equations on the coordinate plane.

The **coordinate plane** was developed centuries ago (in 1637, to be exact) and refined by the French mathematician René Descartes. In his honor, the system is sometimes called the Cartesian coordinate system. The coordinate plane can be used to plot points and graph lines. This system allows us to describe algebraic relationships in a visual sense, and also helps us create and interpret algebraic concepts.

Specifically, in this section you'll learn how to:

- Plot ordered pairs on a rectangular coordinate system
- Identify quadrants on the coordinate plane
- Identify points on a graph
- Determine when an ordered pair is a solution of an equation
- Complete a table of solutions to a linear equation
- Graph linear equations using ordered pairs

Before you get started in this module, try a few practice problems and review prior concepts.

Readiness Quiz

1)

See this interactive in the course material.

If you missed this problem, review the example below.

Evaluate [latex]x+7[/latex] when

1. [latex]x=3[/latex]
2. [latex]x=12[/latex]

Show Solution

Solution:

1. To evaluate, substitute [latex]3[/latex] for [latex]x[/latex] in the expression, and then simplify.

	[latex]x+7[/latex]
Substitute.	[latex]\color{red}{3}+7[/latex]
Add.	[latex]10[/latex]

When [latex]x=3[/latex], the expression [latex]x+7[/latex] has a value of [latex]10[/latex].

2. To evaluate, substitute [latex]12[/latex] for [latex]x[/latex] in the expression, and then simplify.

	[latex]x+7[/latex]
Substitute.	[latex]\color{red}{12}+7[/latex]
Add.	[latex]19[/latex]

When [latex]x=12[/latex], the expression [latex]x+7[/latex] has a value of [latex]19[/latex].

Notice that we got different results for parts 1 and 2 even though we started with the same expression. This is because the values used for [latex]x[/latex] were different. When we evaluate an expression, the value varies depending on the value used for the variable.

2)

See this interactive in the course material.

If you missed this problem, review this example.

[latex]\text{Evaluate }3x+4y - 6\text{ when }x=10\text{ and }y=2[/latex].

Show Solution

SolutionThis expression contains two variables, so we must make two substitutions.

	[latex]3x+4y-6[/latex]
Substitute [latex]\color{red}{10}[/latex] for x and [latex]\color{blue}{2}[/latex] for y.	[latex]3(\color{red}{10})+4(\color{blue}{2})-6[/latex]
Multiply.	[latex]30+8-6[/latex]
Add and subtract left to right.	[latex]32[/latex]

When [latex]x=10[/latex] and [latex]y=2[/latex], the expression [latex]3x+4y - 6[/latex] has a value of [latex]32[/latex].

3)

See this interactive in the course material.

If you missed this problem, review the following video.

Video Link

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