| **Linear Equation** | **In One or Two Variables?** | **How do you find the solution on the graph? Show more than one approach, if possible.** | **What is the “solution”? What does that mean?** | **Does the solution “check” algebraically? If so, show the process.** |
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Key

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|  | One variable | You can either enter into one y= screen and 3 into the next y= screen OR set the equation equal to 0 and enter the entire equation in one y= screen (). | The solution is either the *x*-value of the point of intersection OR the *x*-intercept. In both cases, this value is −1. The solution means the value that makes the equation true. | Yes.  The equation is true when the *x*-value is −1. |
|  | One variable | You can either enter into one y= screen and into the next y= screen,  OR  set the equation equal to 0 and enter the entire equation in one y= screen (). | The solution is either the *x*-value of the point of intersection OR the *x*-intercept. In both cases, the value *appears to be* around 1.5. The solution means the value that makes the equation true. | Yes. However, checking a solution of 1.5 does not give a true statement.  No. We know the value is close to 1.5. Sometimes, it’s not easy to find the exact value from a graph. Solving for *x* algebraically gives:  , which is 1.8. |
|  | Two variables | Enter the equation as is into the y= screen. | There are infinitely many solutions to this equation. Notice that *y* (or the answer) is left as open-ended. We can input any *x*-value and get a unique *y*-value. The *x*-intercept represents one solution. The *y*-intercept represents another solution. The other points on the line represent the other solutions. | We cannot use algebra to find an exact solution, unless we are given a particular value to use in order to evaluate the equation. If we wish to find the solution to the equation for an *x*-value of 3, we would have:    Connecting back to the graph, the point (3, 31) can be found on the line we graphed. |
|  | One variable | You can either enter into one y= screen and into the next y= screen OR set the equation equal to 0 and enter the entire equation in one y= screen (). | The solution is either the *x*-value of the point of intersection OR the *x*-intercept. In both cases, the value is 2. The solution means the value that makes the equation true. | Yes.  The equation is true when the *x*-value is 2. |
|  | One variable | You can either enter into one y= screen and 4 into the next y= screen OR set the equation equal to 0 and enter the entire equation in the y= screen (). | The solution is either the *x*-value of the point of intersection OR the *x*-intercept. In both cases, the value is . The solution means the value that makes the equation true. | Yes.  The equation is true when the *x*-value is 4. |
|  | Two variables | Write in slope-intercept form (*y* = *mx* + *b*). Enter the equation into the y= screen. | There are infinitely many solutions to this equation. Notice that *y* (or the answer) is left as open-ended. We can input any *x*-value and get a unique *y*-value. The *x*-intercept represents one solution. The *y*-intercept represents another solution. The other points on the line represent the other solutions. | We cannot use algebra to find an exact solution, unless we are given a particular value to use to evaluate the equation. If we wish to find the solution to the equation for an *x*-value of 3, we would have:    Connecting back to the graph, the point (3, 10) can be found on the line we graphed. |