See TI-Nspire™ Handbook on pages 415–422.

2-8 Technology: Solve Linear and Literal Equations

Objective To use a handheld to solve linear and literal equations

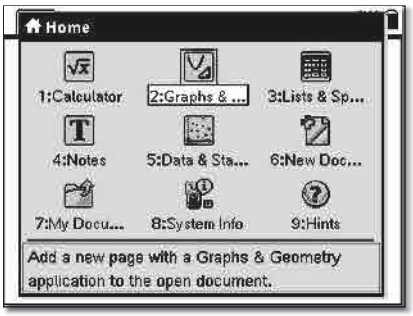
Quinn has 3 more than twice the number of DVDs that Karole has. If Quinn has 21 DVDs, how many does Karole have?

To find out how many DVDs Karole has, first write an equation to represent the situation and then solve by graphing.
Let x = the number of DVDs Karole has *and* y = the number of DVDs Quinn has.

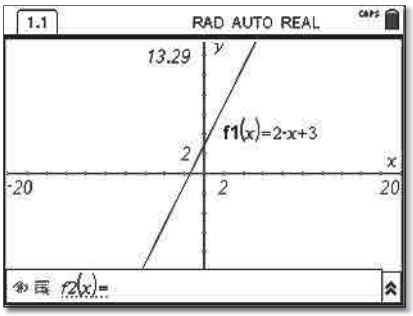
$$y = 2x + 3$$

▶ You can use a handheld to make a graph to solve an equation representing a problem situation.

Step 1 Press (home). Then choose 2 to select **Graphs & Geometry**.

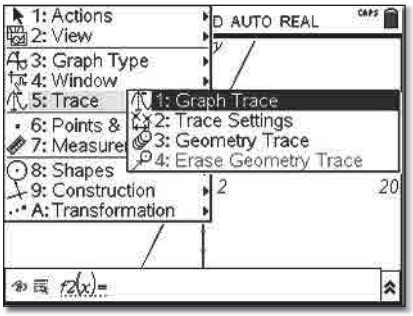


Step 2 Input the equation $2x + 3$. Then press (enter) to graph.

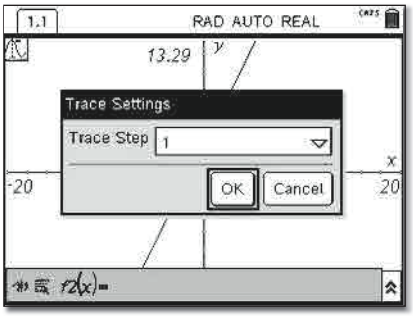


*

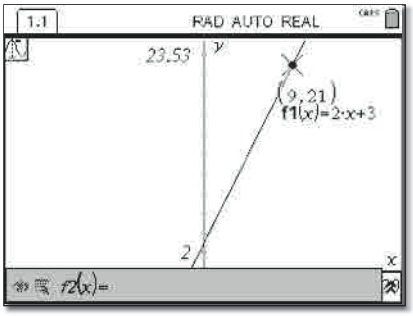
Step 3 Press (menu). Select **Trace**, then choose **Graph Trace**.



Step 4 Press (menu). Select **Trace**, then choose **Trace Settings**. Change **Trace Step** to 1, then press (tab) (enter).



Step 5 Press (▶) to move the trace along the line until the y-coordinate of the graph equals the number of DVDs Quinn has, which is 21. The x-value is the number of DVDs Karole has.



So Karole has 9 DVDs if Quinn has 21.

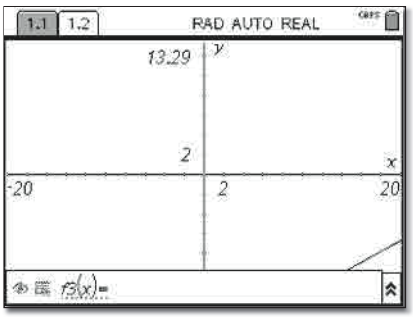
* Window setting adjusted to fit graph

▶ You can also use a handheld to make a graph to solve a literal equation.

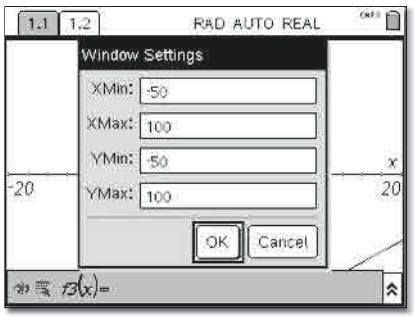
The formula $C = \frac{5}{9}(F - 32)$ relates the temperature in °F to the temperature in °C. Find the temperature in °F if it is −10°C.

Step 1 Press ⌂. Then choose 2 to select **Using Graphs & Geometry**.

Step 2 Input the formula $(5 \div 9)(x - 32)$. Then press enter to graph the equation.

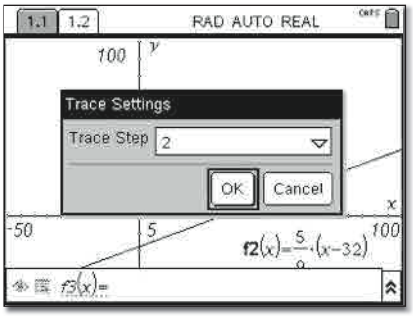


Step 3 Change the window size. Press menu. Select **Window**, then choose **Window Settings**. Change **XMin** and **YMin** to −50 and **XMax** and **YMax** to 100. Then press enter.

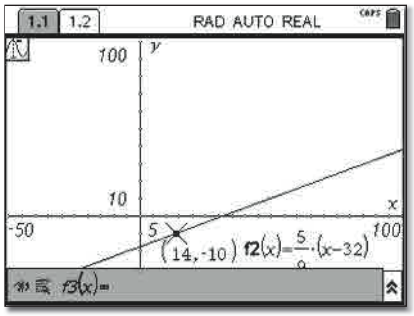


Step 4 Press menu. Select **Trace**, then choose **Graph Trace**.

Step 5 Press menu. Select **Trace**, then choose **Trace Settings**. Change **Trace Step** to 2. Then press tab enter.



Step 6 Press ▶ to move the trace along the line until the y-coordinate of the graph equals −10.



The x-value is the temperature in degrees Fahrenheit. So −10°C is equivalent to 14°F.

Try These

Use a handheld. Make a graph to solve the equation for the given value.

1. $y = 4x + 3$ when $y = 15$

2. $y = 3x - 1$ when $y = -10$

3. $y - \frac{1}{2}x = 7$ when $y = 4$

4. Discuss and Write Barry's age is 2 less than three times his sister Suzie's age. Explain how to use a handheld to make a graph to find Suzie's age when Barry is 16 years old. When Barry is 16, how old is Suzie?

Go to PRACTICE BOOK Lesson 2-8 for exercise sets.