

D Finding Points of Intersection with a Graphing Calculator

The graphs of $y = x + 3$ and $y = -x + 9$ intersect on the standard viewing screen. To find the point of intersection with a TI or Casio graphing calculator, first enter the two equations on the “Y=” screen (one as Y_1 and one as Y_2), erase any other equations, and erase the “Y=” screen by pressing $\boxed{2nd} \boxed{QUIT}$. Then follow the following instructions.

On a TI-80/81

- Graph the two equations on the standard viewing screen.
- Use the “Zoom In” and “Trace” commands discussed in Appendix C Exercises 5–8 to approximate the location of the point of intersection as accurately as possible. You may need to use these commands more than once.
- Check your answer by substituting the ordered pair into each of the two equations.

On a TI-82/83

- Graph the two equations on the standard viewing screen.
- Press $\boxed{2nd} \boxed{CALC}$ and select option 5, “intersect.”
- When the calculator responds with “First curve?” and a mark on the first equation’s graph, press \boxed{ENTER} .
- When the calculator responds with “Second curve?” and a mark on the second equation’s graph, press \boxed{ENTER} .
- When the calculator responds with “Guess?”, use the left and right arrows to place the mark near the point of intersection, and press \boxed{ENTER} .
- Check your answer by substituting the ordered pair into each of the two equations.

On a TI-85/86

- Graph the two equations on the standard viewing screen.
- Press \boxed{MORE} until the “MATH” option appears, and select that option.
- Press \boxed{MORE} until the “ISECT” option appears, and select that option.
- When the calculator responds with a mark on the first equation’s graph, press \boxed{ENTER} .
- When the calculator responds with a mark on the second equation’s graph, press \boxed{ENTER} .
- Check your answer by substituting the ordered pair into each of the two equations.

On a Casio

- Graph the two equations on the standard viewing screen.
- Press $\boxed{G-Solv}$ (i.e., $\boxed{F5}$).

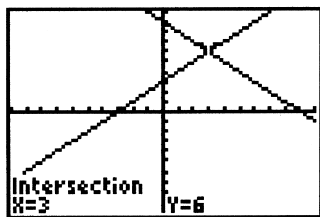


Figure A.9
Finding the point of intersection on a TI-82

- Press $\boxed{\text{ISCT}}$ (i.e., $\boxed{\text{F5}}$). Watch and wait.
- After a pause, the calculator will display the location of the x -intercept.

Figure A.9 shows the results of computing the point of intersection of $y = x + 3$ and $y = -x + 9$.

The information on the screen indicates that the point of intersection is (3, 6). To check this, substitute 3 for x into each of the two equations; you should get 6.

$$y = x + 3 = 3 + 3 = 6. \quad \checkmark$$

$$y = -x + 9 = -3 + 9 = 6. \quad \checkmark$$

Exercises

In Exercises 1–6, do the following.

- a. Use the graphing calculator to find the point of intersection of the given equations.
 - b. Check your solutions by substituting the ordered pair into each of the two equations. Answers are not given in the back of the book.
1. $y = 3x + 2$ and $y = 5x + 5$
 2. $y = 2x - 6$ and $y = 3x + 4$
 3. $y = 8x - 14$ and $g(x) = 11x + 23$

HINT: You will have to change x_{\min} , x_{\max} , y_{\min} , and y_{\max} to find the point.

4. $y = -7x + 12$ and $y = -12x - 71$

HINT: You will have to change x_{\min} , x_{\max} , y_{\min} , and y_{\max} to find the point.

5. $y = x^2 - 2x + 3$ and $y = -x^2 - 3x + 12$
(Find two answers.)
6. $f(x) = 8x^2 - 3x - 7$ and $y = 2x + 4$
(Find two answers.)