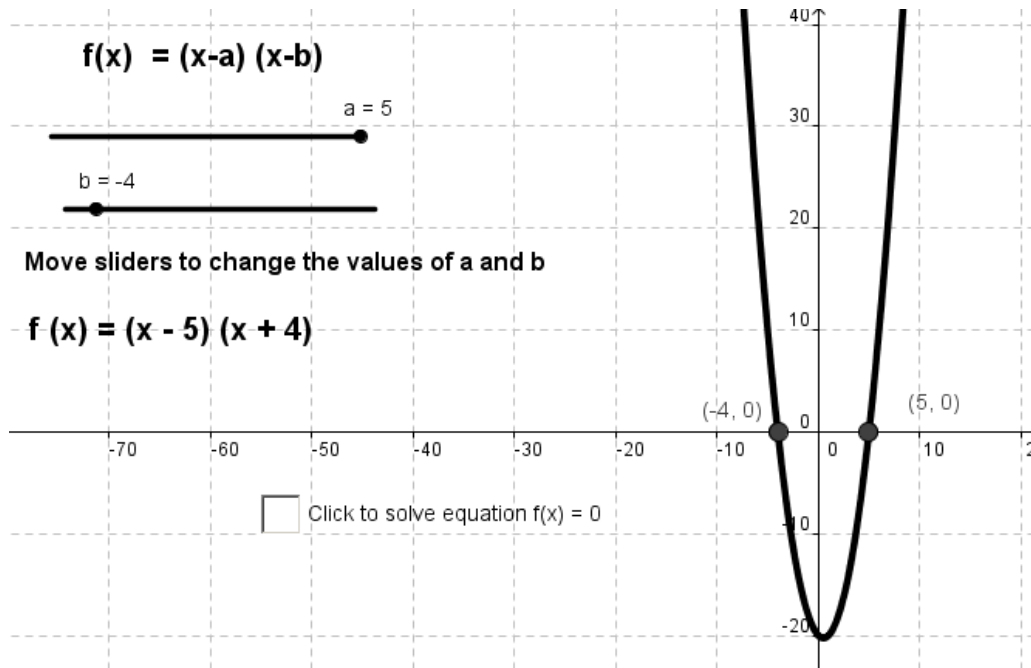


Student Activity: To investigate how to solve $f(x) = (x - a)(x - b)$

Use in connection with the Interactive file, ' $(x - a)(x - b)$ ', on the Student's CD.



Note: Solving the equation $(x - a)(x - b) = 0$ is the same as solving $f(x) = 0$. So we can find the roots of the equation $(x - a)(x - b) = 0$ by taking the x-values of the points where $f(x)$ cuts the x-axis.

1.

- a. Using the interactive file, find where the function $f(x) = (x - 2)(x - 5)$ cuts the x axis.

- b. Hence solve the equation $(x - 2)(x - 5) = 0$.

- c. By substituting your solution(s) for x into $f(x)$, check that $f(x)$ is equal to 0 at these point(s).

2.

- a. Using the interactive file, find where the function $f(x) = (x - 1)(x - 5)$ cuts the x axis.

- b. Hence solve the equation $(x - 1)(x - 5) = 0$.

- c. By substituting your solution(s) for x into $f(x)$, check that $f(x)$ is equal to 0 at these point(s).

3.

- a. Using the interactive file, find where the function $f(x) = (x + 1)(x - 5)$ cuts the x axis.

- b. Hence solve the equation $(x + 1)(x - 5) = 0$.

- c. By substituting your solution(s) for x into $f(x)$, check that $f(x)$ is equal to 0 at these point(s).

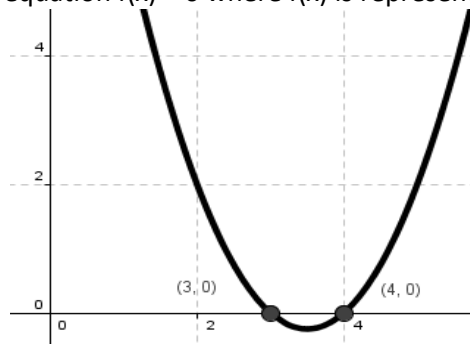
4.

a. Using the interactive file, find where the function $f(x) = (x + 1)(x + 5)$ cuts the x axis.

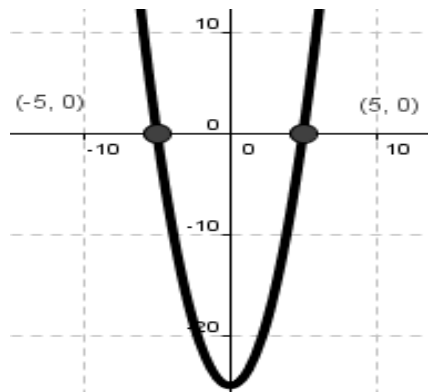
b. Hence solve the equation $(x+1)(x+5) = 0$.

c. By substituting your solution(s) for x into $f(x)$, check that $f(x)$ is equal to 0 at these point(s).

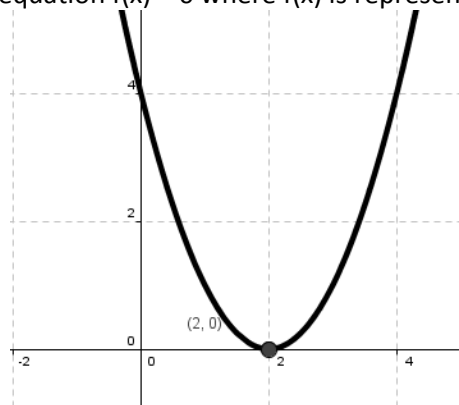
5. Find the solution(s) to the equation $f(x) = 0$ where $f(x)$ is represented on the graph below.



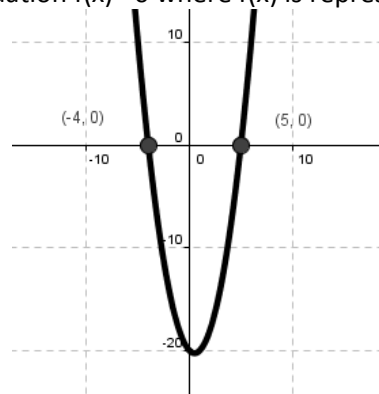
6. Find the solution(s) to the equation $f(x) = 0$ where $f(x)$ is represented on the graph below.



7. Find the solution(s) to the equation $f(x) = 0$ where $f(x)$ is represented on the graph below.

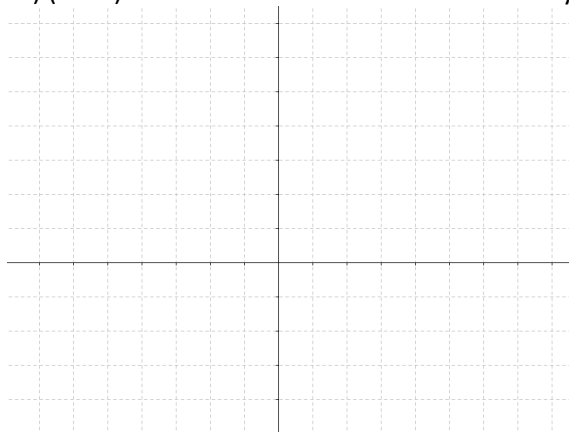


8. Find the solution(s) to the equation $f(x) = 0$ where $f(x)$ is represented on the graph below.

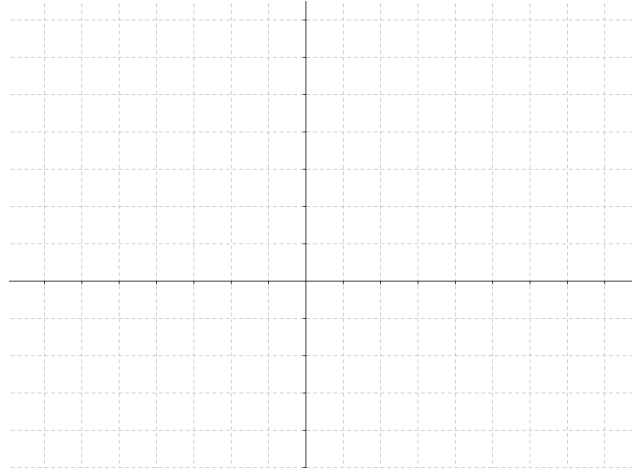


9. When does an equation of the form $f(x) = (x - a)(x - b) = 0$ have only one solution?

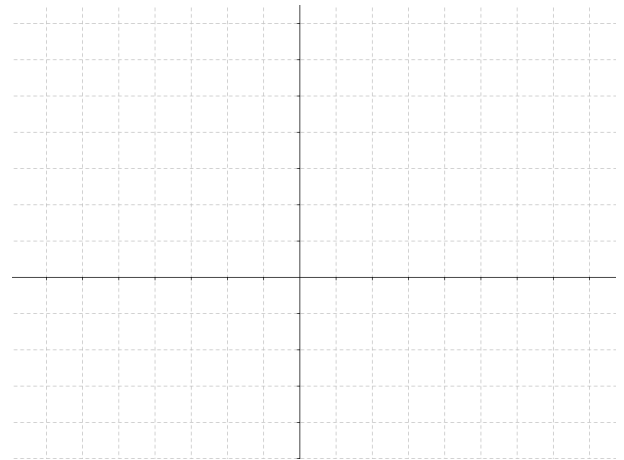
10. Draw a rough sketch of the function $f(x) = (x - 2)(x - 4)$.
Solve the equation $(x - 2)(x - 4) = 0$. Use the interactive file to check your answers.



11. Draw a rough sketch of the function
 $f(x) = (x + 3)(x + 1)$.
Solve the equation $(x + 3)(x + 1) = 0$. Use the
interactive file to check your answers.



12. Draw a rough graph of the function
 $f(x) = (x - 1)(x - 1)$.
Solve the equation $(x - 1)(x - 1) = 0$. Use the
interactive file to check your answers.



13. Draw a rough graph of the function
 $f(x) = (x + 3)(x - 3)$.
Solve the equation $(x + 3)(x - 3) = 0$. Use
the interactive file to check your answers.

