
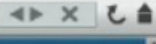


Page 178. Write the solution in the blank space at the top of the page in your textbook.

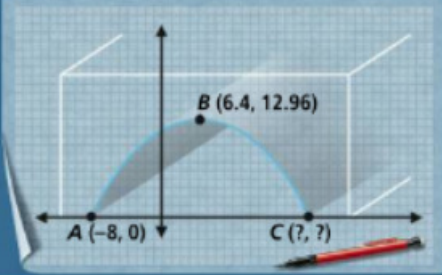


SOLVE IT!

Getting Ready!

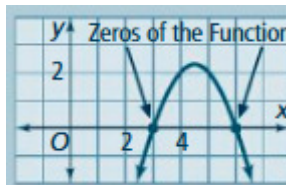


As part of an engineering project, your team is drawing a highway tunnel on a coordinate system. The tunnel opening is in the shape of a parabola. You need to finish the drawing. What are the coordinates of point C? Explain your reasoning.



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Wherever the graph of a function $f(x)$ intersects the x -axis, $f(x) = 0$. A value of x for which $f(x) = 0$ is a **zero of the function**.



You can solve some quadratic equations in standard form by factoring the quadratic expression and using the **Zero-Product Property**.

Take note

Property Zero-Product Property

If $ab = 0$, then $a = 0$ or $b = 0$.

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Problem 1 Solving a Quadratic Equation by Factoring

A Practice Solve each equation by factoring. Check your answers.

1. $x^2 + 18 = 9x$

2. $3x^2 = 16x + 12$

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Problem 2 Solving a Quadratic Equation With Desmos

A Practice Using Desmos Solve each equation using Desmos. Give the answer to at most two decimal places.

3. $4x^2 = x + 3$

4. $10x^2 + 3 = 11x$

Problem 3 Solving a Quadratic Equation by Graphing

A Practice **Using Desmos** Solve each equation by graphing. Give each answer to at most two decimal places.

5. $6x^2 + 31x = 12$

6. $2x^2 - 2x - 5 = 0$

Problem 4 Using a Quadratic Equation

A Practice **STEM** **7. Physics** The function $h = -16t^2 + 1700$ gives an object's height h , in feet, at t seconds.

- a. What does the constant 1700 tell you about the height of the object?

- b. What does the coefficient of t^2 tell you about the direction the object is moving?

- c. When will the object be 1000 ft above the ground?

- d. When will the object be 940 ft above the ground?

- e. What are a reasonable domain and range for the function h ?