LESSON MAKER PRO

Check the Curve

Use graphs to verify solutions.

HIGH SCHOOL · PC.F.3.2

PC.F.3.2 "Graphically verify solutions involving functions that are quadratic, polynomial of higher order, rational, exponential, and logarithmic."

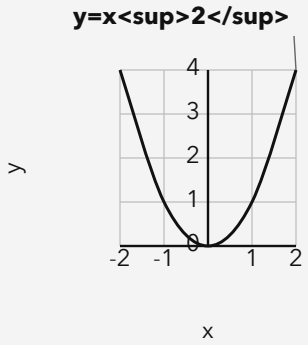
NAME _____ DATE _____

GRAPH CHECK

To solve f(x)=a on a graph, find where the curve has height a and read the x-values. To check a proposed solution, find its point on the curve and compare its height with a.

WORKED EXAMPLE

Use the graph of $y=x^2$ to solve $x^2=4$.



1. Find height 4 on the y-axis.
2. Read the x-values where the curve reaches that height: -2 and 2.

Answer: x=-2 or x=2

PRACTICE 4 problems

1 Use the example graph to solve $x^2=1$.

ANSWER _____

2 Use the example graph to solve $x^2=0$.

ANSWER _____

3 Does x=-1 solve $x^2=0$? Use the example graph to explain.

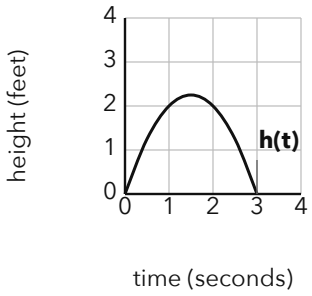
ANSWER _____

4 Does x=0 solve $x^2=1$? Use the example graph to explain.

ANSWER _____

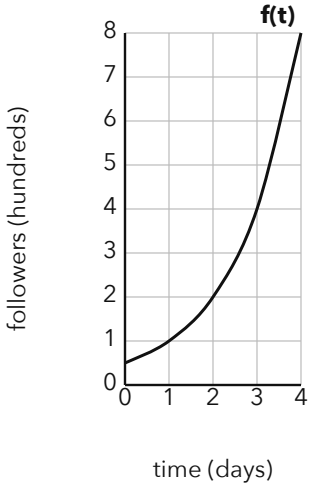
APPLY IT Show your work

1 During a skateboard jump, the board's height in feet is $h(t)=-t^2+3t$ for $0 \le t \le 3$. Use the graph to verify both times it is 2 feet high.



ANSWER _____

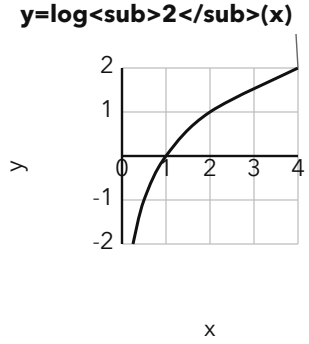
2 A creator's follower count, in hundreds, follows $f(t)=2^{t-1}$, where t is days after a post. Use the graph to verify when the count reaches 200.



ANSWER _____

CHALLENGE One step up

A student says x=0 solves $\log_2(x)=0$ because the axes meet at (0,0). Use the graph to explain the error and give the solution.



WORK SPACE AND ANSWER

ANSWER KEY

Check the Curve

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the example graph to solve $x^2=1$.	**x=-1 or x=1**
2	Use the example graph to solve $x^2=0$.	**x=0**
3	Does x=-1 solve $x^2=0$? Use the example graph to explain.	**No. At x=-1, the curve has height 1, not 0.**
4	Does x=0 solve $x^2=1$? Use the example graph to explain.	**No. At x=0, the curve has height 0, not 1.**

PART 2 · APPLY IT

1. **1 second and 2 seconds** The curve reaches height 2 at t=1 and t=2.
2. **2 days after the post** The count is measured in hundreds, so 200 corresponds to height 2. The curve reaches that height at t=2.

CHALLENGE

The axes meet at (0,0), but the logarithm curve does not pass through that point and is undefined at x=0. The curve reaches height 0 at x=1, so x=1 is the solution.

Accept solutions read from the plotted curves. For the challenge, accept any explanation that distinguishes the axes from the curve and identifies x=1.