

Day 6: Solving by Quadratic Formula

Exploring the Nature of Roots

In this task you will investigate the number of real solutions to a quadratic equation.

1. $f(x) = x^2 - 4x + 3$

a.) How many x-intercepts does the function have?

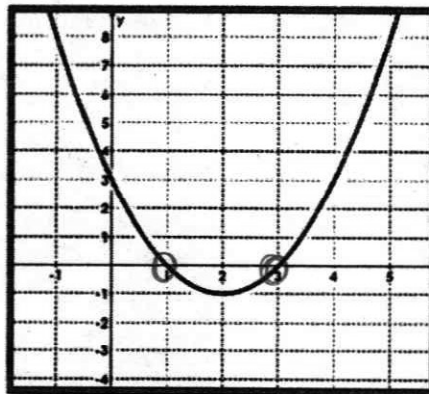
2

b.) Label and state the x-intercept(s), if any.

$x = 1$ $x = 3$

c.) Solve the quadratic function by factoring, if possible.

~~$\begin{array}{r} 3 \\ -1 \\ -4 \\ -3 \end{array}$~~ $(x-1)(x-3) = 0$
 $x-1=0$ $x-3=0$
 $+1$ $+3$
 $\boxed{x=1}$ $\boxed{x=3}$



2. $f(x) = x^2 + 10x + 25$

a.) How many x-intercepts does the function have?

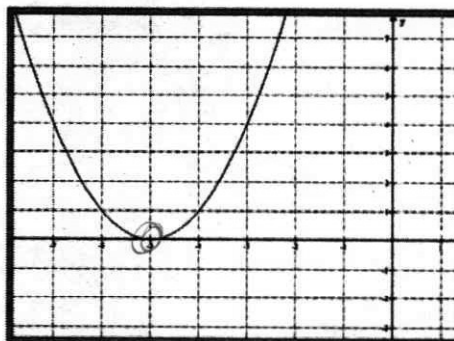
1

b.) Label and state the x-intercept(s), if any.

$x = -5$

c.) Solve the quadratic function by factoring, if possible.

~~$\begin{array}{r} 25 \\ 5 \\ 10 \\ 5 \end{array}$~~ $(x+5)(x+5) = 0$
 $x+5=0$
 -5
 $\boxed{x=-5}$



3. $f(x) = x^2 + x + 1$

a.) How many x-intercepts does the function have?

none

b.) Label and state the x-intercept(s), if any.

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c.) Solve the quadratic function by factoring, if possible.

~~$\begin{array}{r} 1 \\ 1 \end{array}$~~ \rightarrow not possible

