

1. Graph $f_1(x) = x^2 - 6x + 3$ and find both zeros (decimals).

Analyze Graph > Zero twice

Answer: about 0.55 and 5.45

2. Your algebra gave $3 \pm \sqrt{6}$. Does $\sqrt{6}$ approx 2.449 match the graph zeros?

$3 - 2.449$ and $3 + 2.449$

Answer: yes: 0.551 and 5.449

3. Graph $f_1(x) = 2x^2 - 4x - 3$. How many real zeros?

Count x-axis crossings

Answer: 2

4. Graph $f_1(x) = x^2 + x + 5$. How many real zeros, and what does that mean?

No crossings

Answer: 0 - no real solutions

5. Use the table (ctrl+T) to check: is $x = 5$ a solution of $x^2 - 3x - 10 = 0$?

$f_1(5) = 25 - 15 - 10$

Answer: yes, $f_1(5) = 0$

6. Graph $f_1(x) = x^2 - 2x - 4$ and estimate the zeros to one decimal.

Zeros via Analyze

Answer: about -1.2 and 3.2

7. Confirm $3 \pm \sqrt{6}$: evaluate $f_1(3 + \sqrt{6})$ on a calculator page. What should you get?

Substitute exactly

Answer: 0

8. A quadratic's graph crosses at about 1.27 and -4.27. Which exact answer fits: $-1.5 \pm \sqrt{8}$ or $-1.5 \pm \sqrt{10}$?

-1.5 ± 2.83 gives 1.33/-4.33 approx

Answer: $-1.5 \pm \sqrt{8}$

9. Graph $f_1(x) = x^2 - 4x + 1$. Find the zeros, the minimum, and show the zeros are symmetric about the vertex.

Zeros $\sim 0.27, 3.73$; min (2,-3)

Average of zeros = 2

Answer: zeros avg to $x = 2$ (the vertex)

10. Solve $x^2 - 6x + 7 = 0$ by formula, then CONFIRM on the calculator two ways (graph zeros AND a table).

$3 \pm \sqrt{2}$ approx 1.59, 4.41

Graph + table agree

Answer: $x = 3 \pm \sqrt{2}$, confirmed