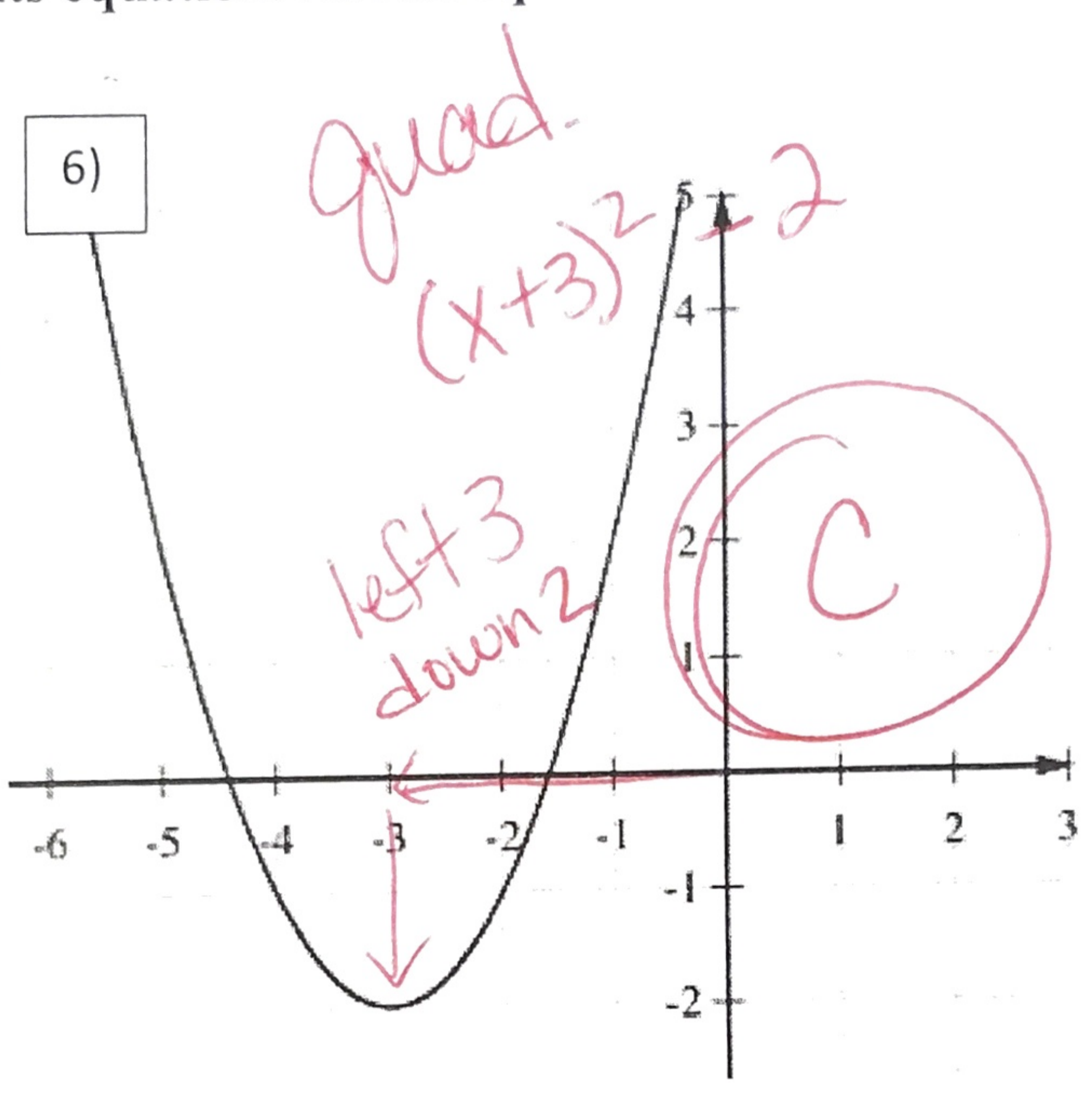
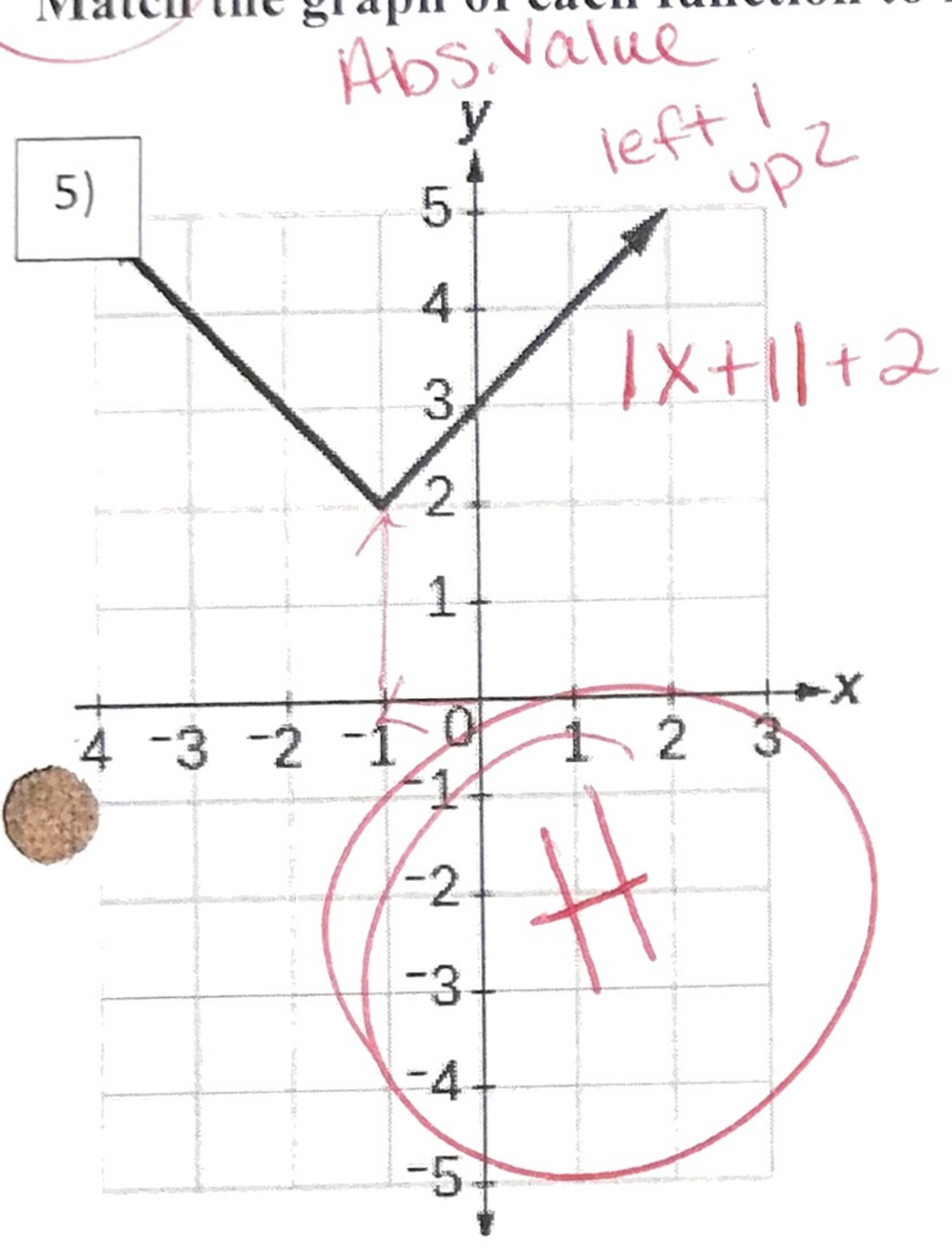


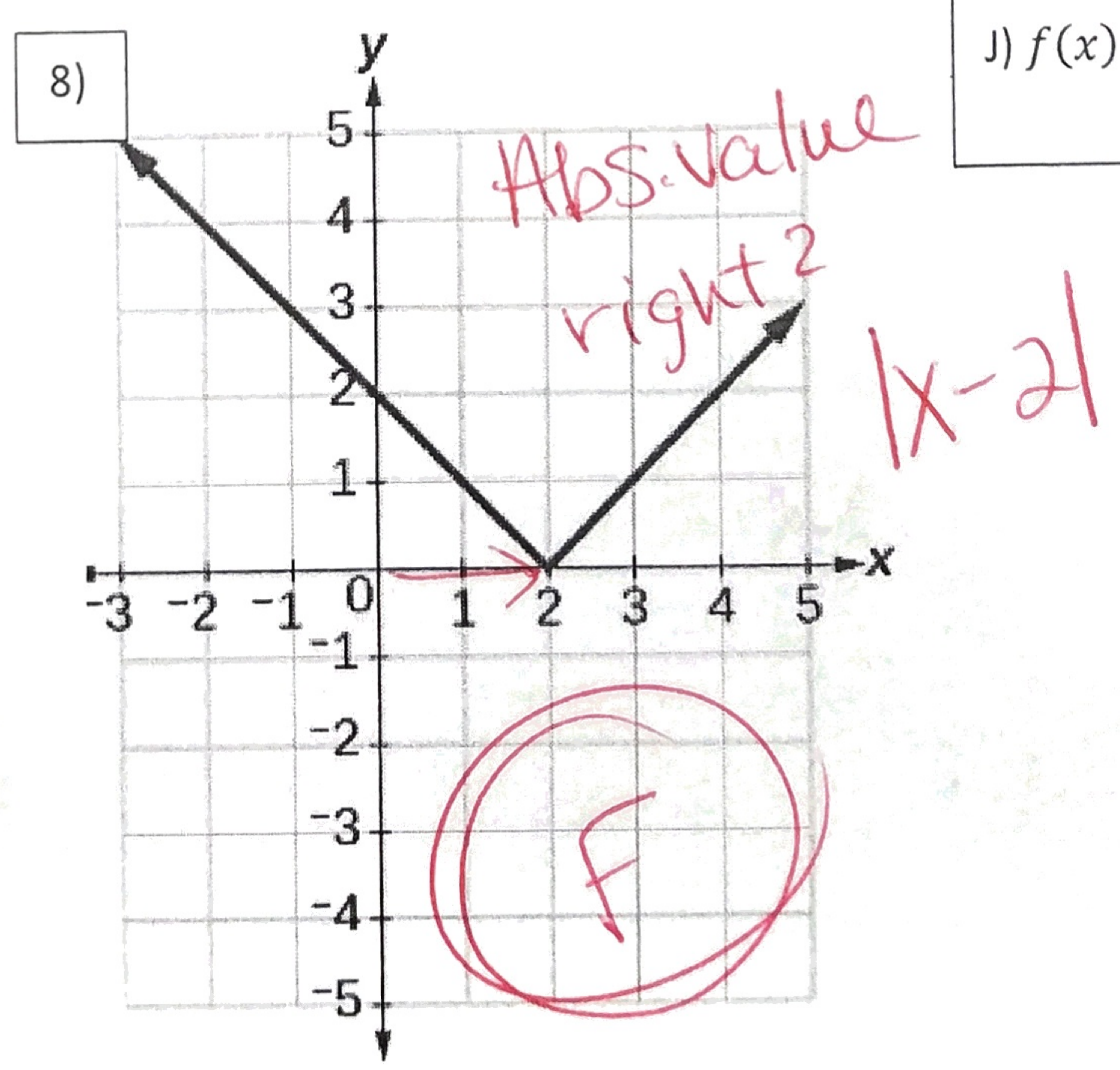
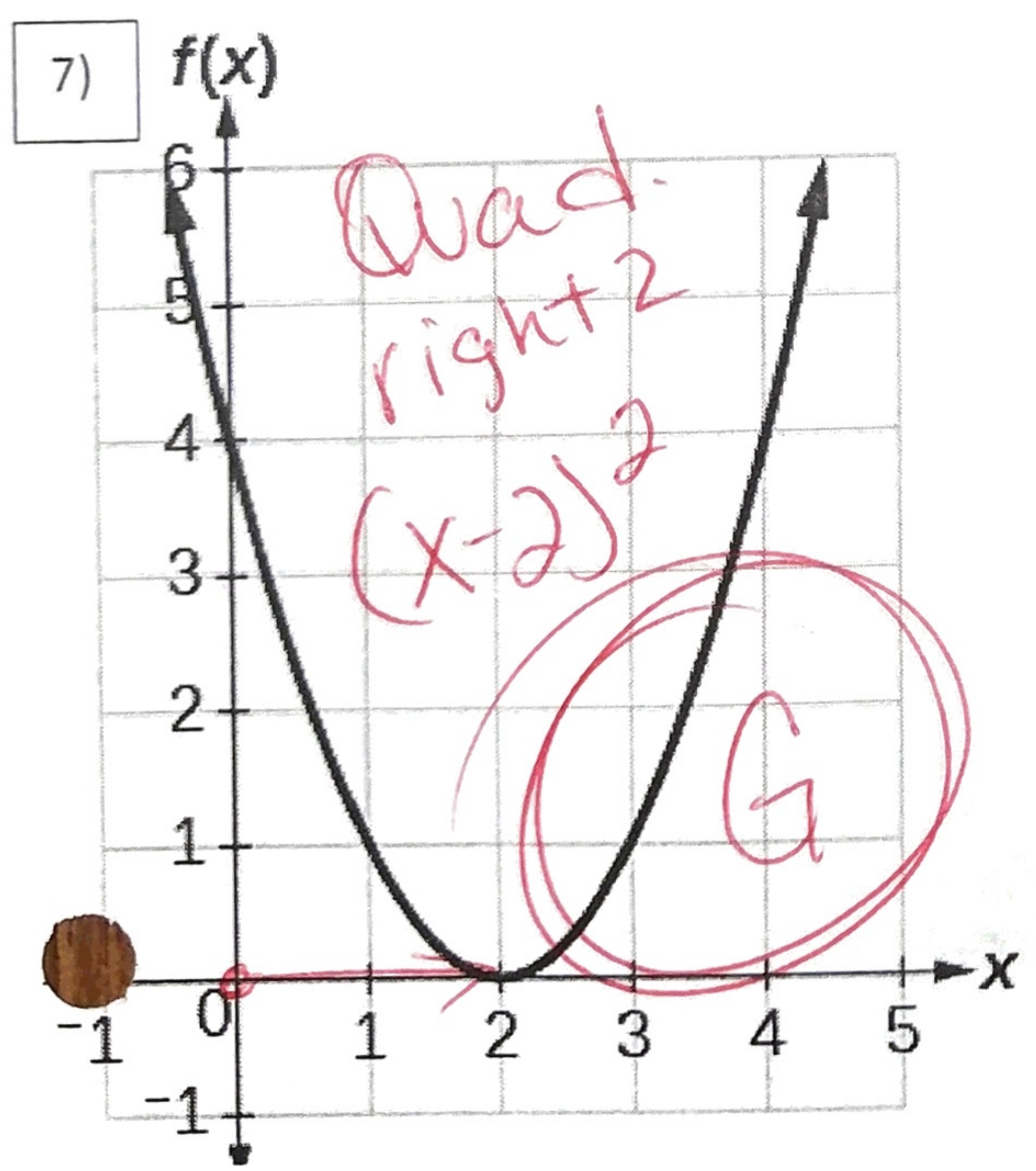
Use the given function and the transformation to create the new function.

- $f(x) = 4x$ is shifted three unit down to create $g(x)$. $g(x) = 4x - 3$
- $f(x) = |x| - 6$ is shifted 7 unit right to create $h(x)$. $h(x) = |x - 7| - 6$
- $f(x) = x^2$ is shifted 5 units left and 1 unit up to create $j(x)$. $j(x) = (x + 5)^2 + 1$
- $f(x) = 3 \cdot 5^x$ is shifted 2 units right and 7 units down to create $k(x)$. $k(x) = 3 \cdot 5^{x-2} - 7$

Match the graph of each function to its equation. Not all equations will be used.

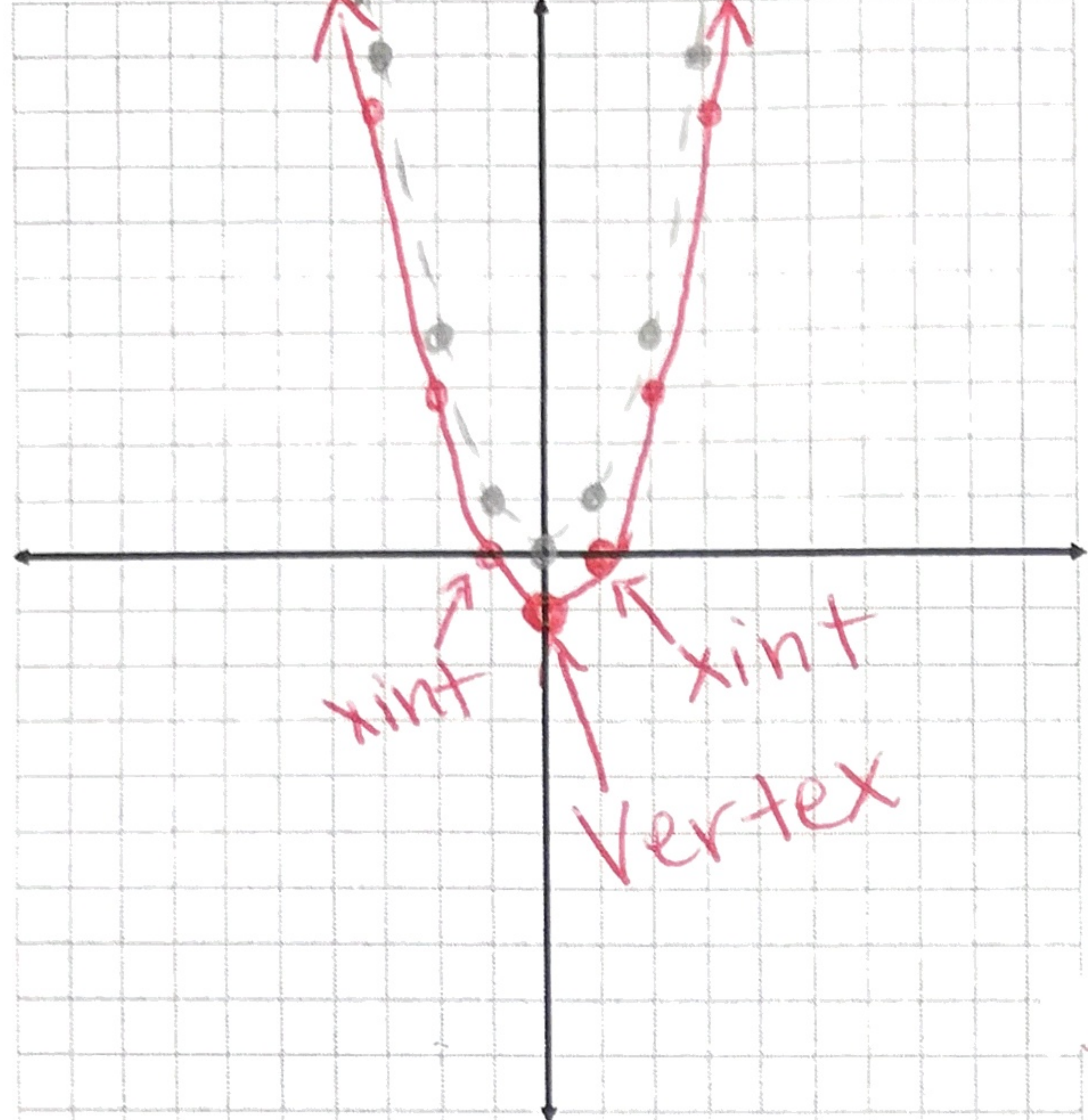


- A) $f(x) = (x - 3)^2 - 2$
- B) $f(x) = |x + 2|$
- C) $f(x) = (x + 3)^2 - 2$
- D) $f(x) = |x| + 2$
- E) $f(x) = (x + 1)^2 + 2$
- F) $f(x) = |x - 2|$
- G) $f(x) = (x - 2)^2$
- H) $f(x) = |x + 1| + 2$
- I) $f(x) = (x + 2)^2$
- J) $f(x) = |x| - 2$



• Parent $f(x) = x^2$

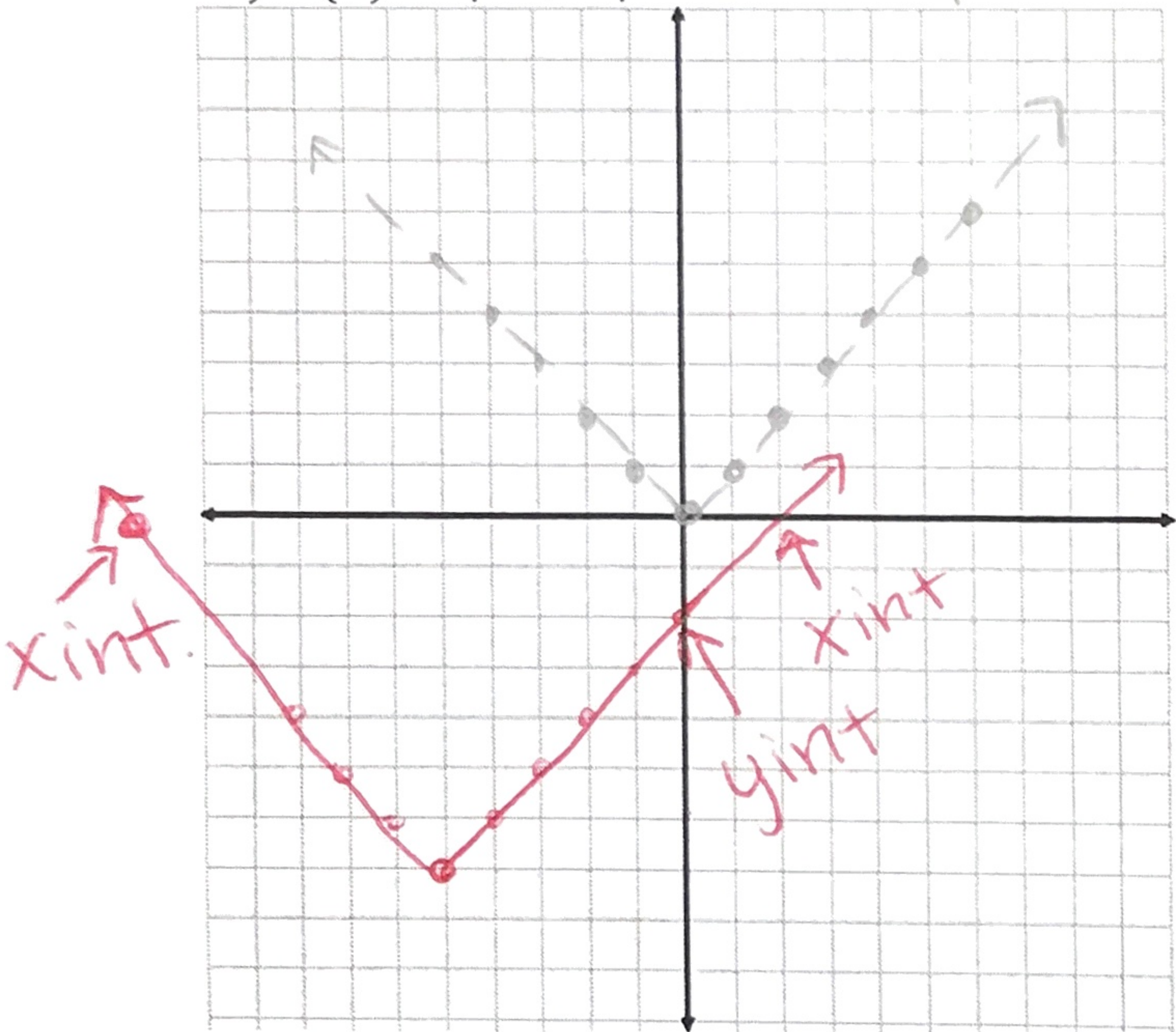
9) $g(x) = x^2 - 1$



- Describe verbally all transformations to the parent function $f(x) = x^2$ *it moved down 1*
- Determine the y-intercept $g(0) = 0^2 - 1$ *happen when $x=0$* $g(0) = 0 - 1$ $(0, -1)$
- Determine the vertex. Is it a max or min? $(0, -1)$ *Min*
- Determine the domain and range $D: (-\infty, \infty)$ $R: [-1, \infty)$
- Determine the axis of symmetry $x=0$ *x-int.*
- How many ~~zeros~~ does the function have? (two, one, or none) *two*
- Sketch the graph

10) $h(x) = |x + 5| - 7$

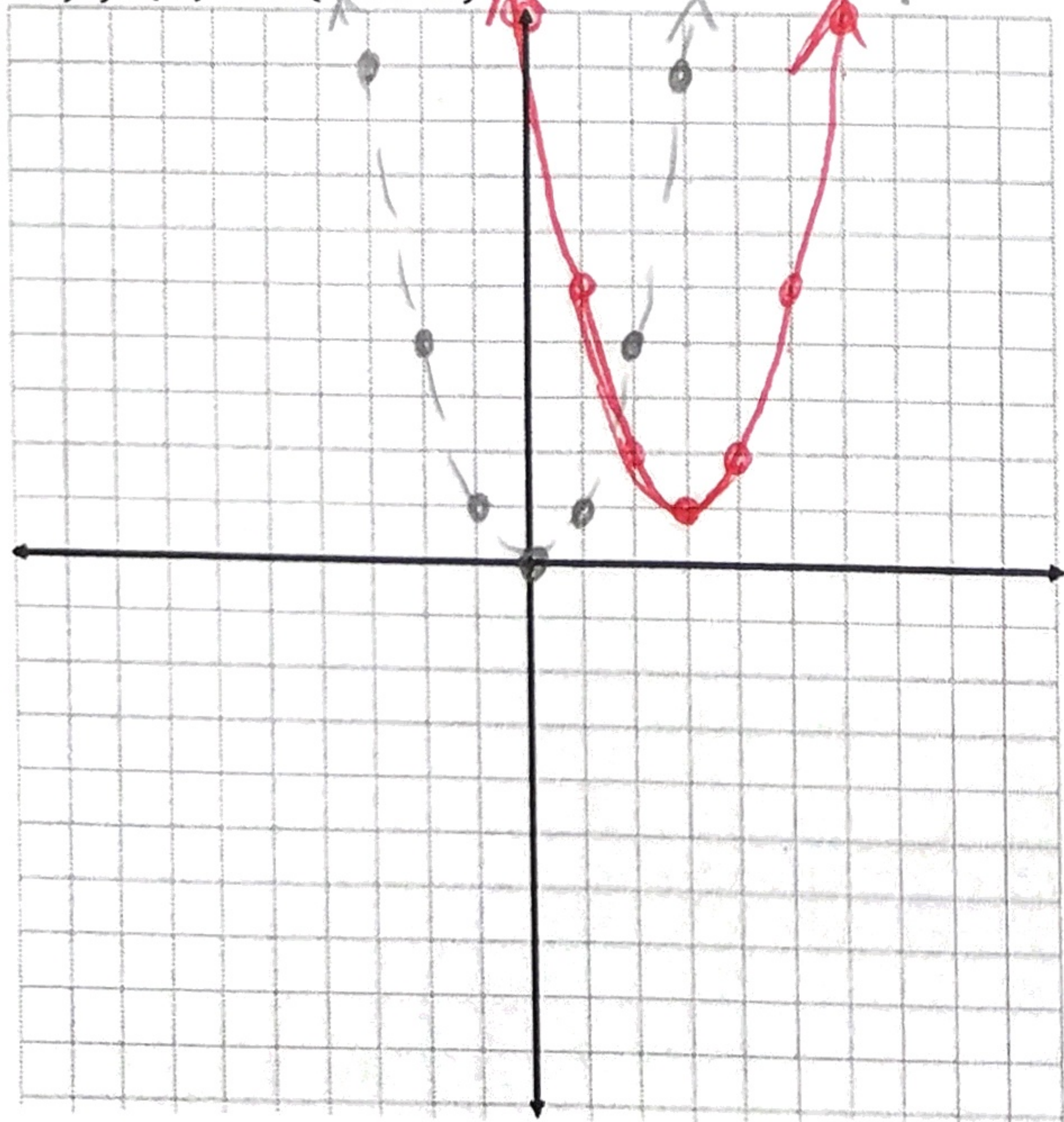
• Parent $f(x) = |x|$



- Describe verbally all transformations that have occurred to the function $f(x) = |x|$ *moved left 5 & down 7*
- Determine the y-intercept $h(0) = |0 + 5| - 7$ $(0, -2)$ *happen when $x=0$* $= |5| - 7$
- Determine the domain and range $D: (-\infty, \infty)$ $R: [-7, \infty)$ *x-int.*
- How many ~~zeros~~ does the function have? *2*
- Sketch the graph

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

• Parent x^2



- Describe verbally all transformations that occurred to the parent function $y = x^2$ *moved right 3 & up 1*
- Determine the y-intercept $f(0) = (0 - 3)^2 + 1$ $(0, 10)$ *happens when $x=0$* $= (-3)^2 + 1$ $= 9 + 1$
- Determine the vertex. Is it a max or min? $(3, 1)$ *min*
- Determine the domain and range $D: (-\infty, \infty)$ $R: [1, \infty)$
- Determine the axis of symmetry $x=3$ *x-int.*
- How many ~~zeros~~ does the function have? (two, one, or none) *none*
- Sketch the graph