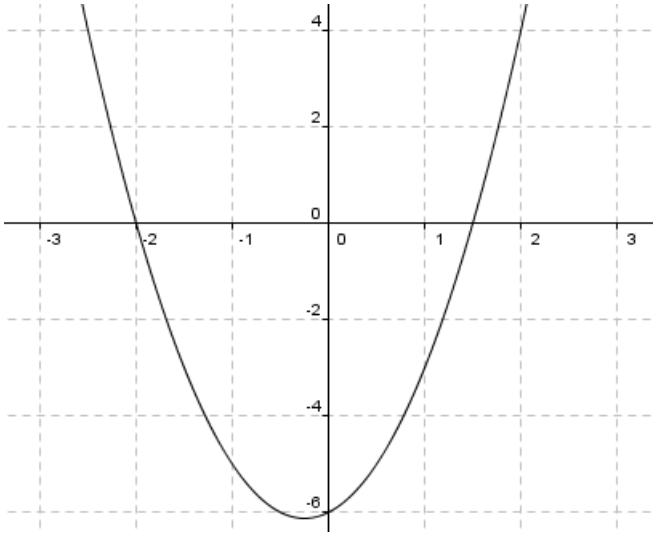
Solving Quadratics Graphically – Example Method

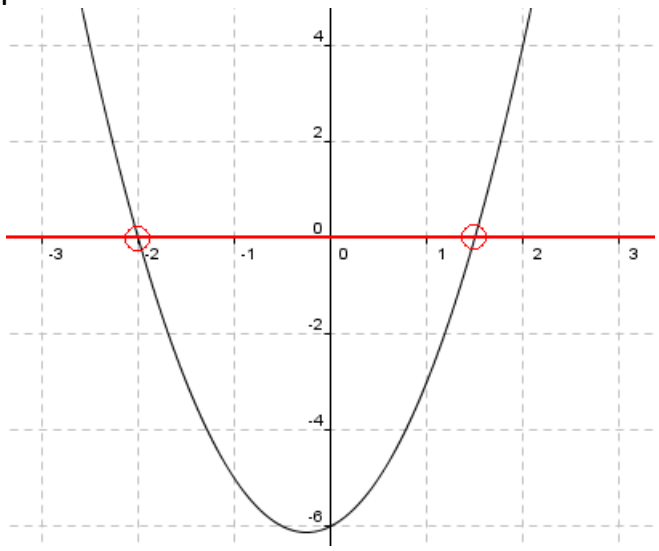
The graph shows the function:

$$y = 2x^2 + x - 6$$



1. Use the graph to estimate solutions to the equation $2x^2 + x - 6 = 0$

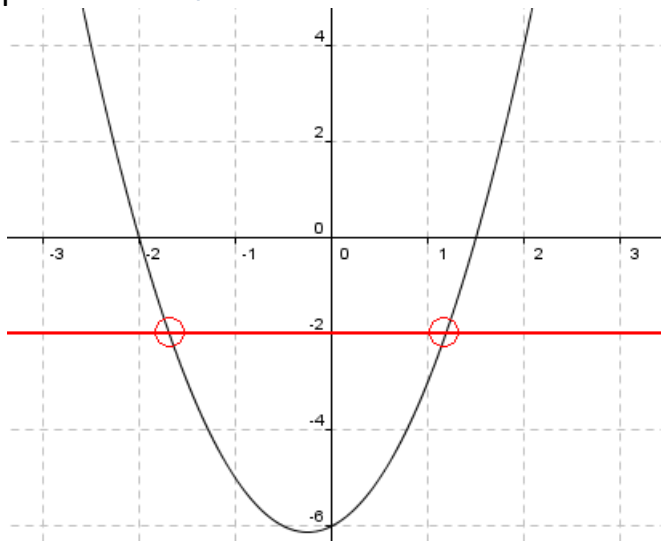
Since changing y to 0 in the original graph equation gives $0 = 2x^2 + x - 6$, we need to find out where the curve crosses the line $y = 0$ (that is, the x-axis):



$$\boldsymbol{x = -2 \quad and \quad x = 1.5}$$

2. Use the graph to estimate solutions to the equation $2x^2 + x - 6 = -2$

Since changing y to -2 in the original graph equation gives $-2 = 2x^2 + x - 6$, we need to find out where the curve crosses the line $y = -2$ (that is, a horizontal line through -2 on the y-axis):



$$\boldsymbol{x = -1.7 \quad and \quad x = 1.2}$$