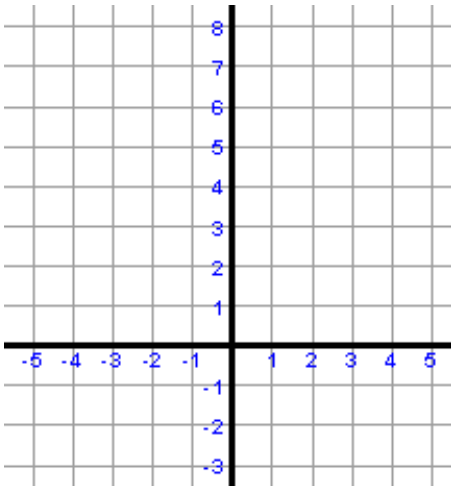
Exploration: Graphs of quadratic equations

I. Create a table of values, and then graph the function

$m(x) = x^2$-1 for -3 ≤ x ≤ 3.

x	m(x)



1. Where does the function intercept the y-axis?
    a. Can you obtain this from the quadratic function equation?

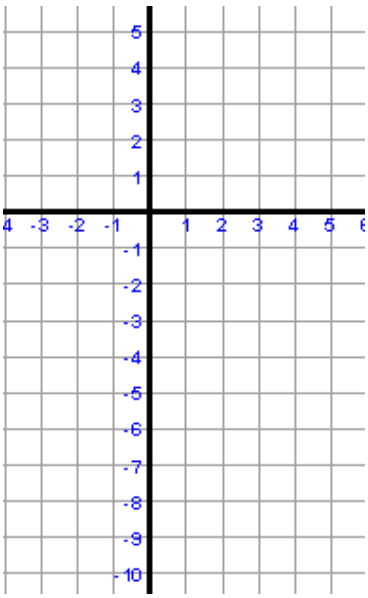
2. Where does the function intercept the x-axis?
    a. Can you find these using algebraic process?

3. What is the axis-of-symmetry?
    a. Can you see it from the graph? Table?
    b. Write the y-coordinate of the lowest point on the graph of m(x)

II. Create a table of values, and then graph the function

$h(x) = (x - 4)(x + 2)$ for $-2 \leq x \leq 4$

x	h(x)

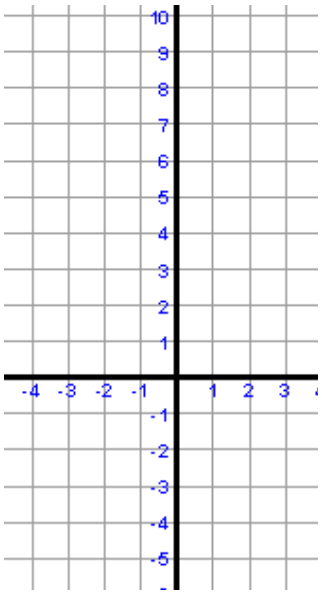


1. For what x value(s) is h(x) equal to zero?
2. What is the axis of symmetry?
3. What is the minimum value of h(x)?

III. Create a table of values, and then graph the function

$g(x) = -x^2 - 2x + 8$ for $-4 \leq x \leq 4$

x	g(x)



1. What is the y-intercept of the function?
2. How and why is this graph different compared to the previous two?

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