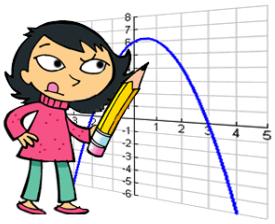
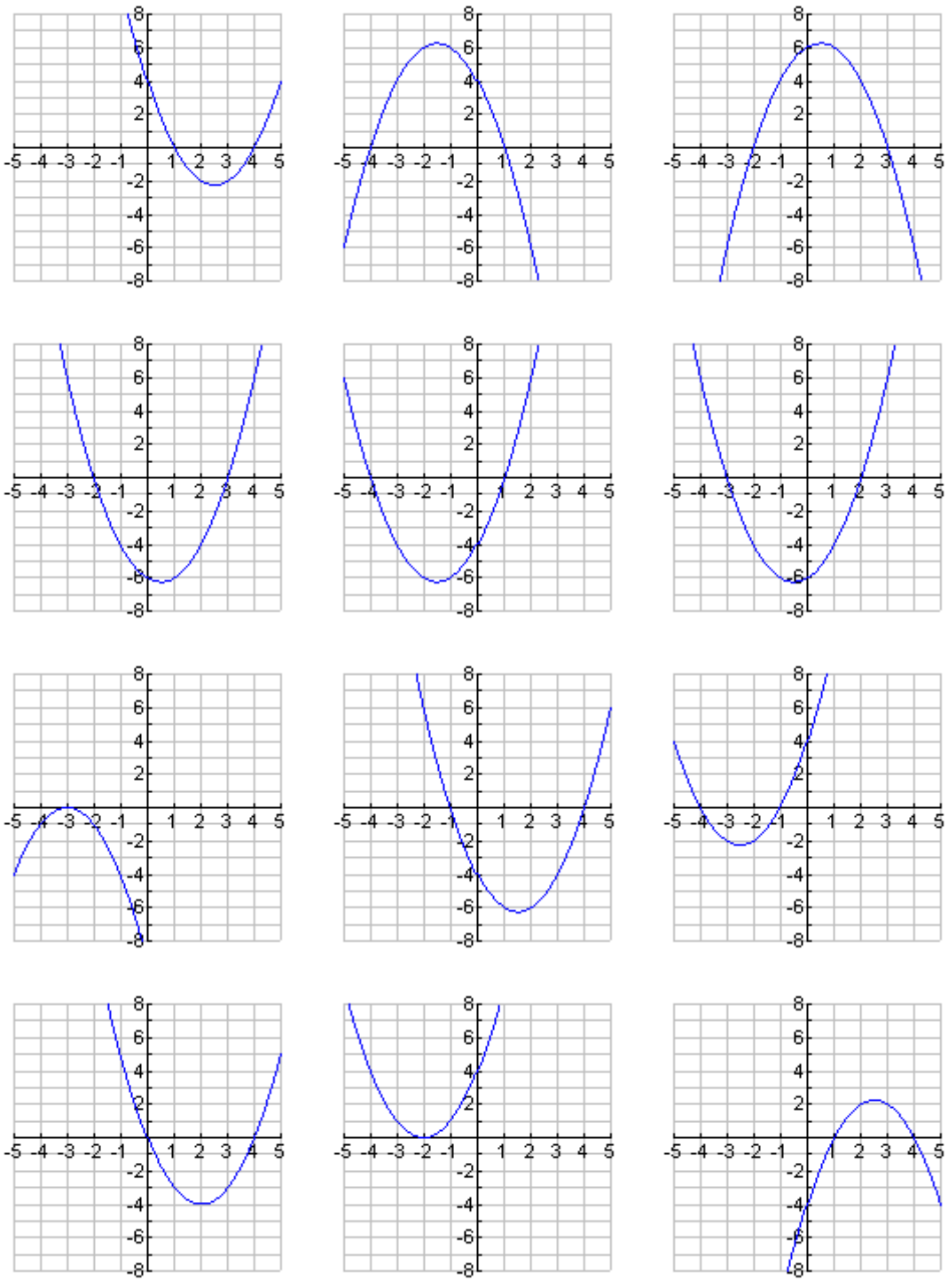


GRAPHING FROM FACTORED FORM WORKSHEET #1

NAME_____ PERIOD_____ DATE_____

Part A: Using your calculator as needed, match each equation to its graph.

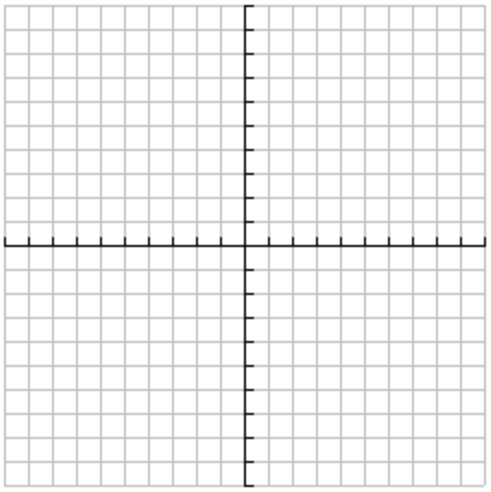
1. $y = -(x+2)(x-3)$
2. $f(x) = (x-2)(x+3)$
3. $g(x) = (x-3)(x+2)$
4. $h(x) = (x-4)(x+1)$
5. $k(x) = (x-1)(x+4)$
6. $t(x) = -(x-1)(x+4)$
7. $y = (x-1)(x-4)$
8. $y = -(x-1)(x-4)$
9. $f(x) = (x-0)(x-4)$
10. $g(x) = (x+2)(x+2)$
11. $h(x) = -(x+3)(x+3)$
12. $k(x) = (x+4)(x+1)$



What do you see that helps match the equations to their graphs quickly?

Part B: Look carefully at quadratic graphs when the equation is in factored form.

1. Let's try to make a high quality graph of the $y=(x-2)(x+4)$ by hand.
   Follow these steps.



   a. What's are the two horizontal intercepts?
      Plot them on the grid.

   b. Since quadratic graphs are symmetrical, find the line of symmetry by using the horizontal intercepts.
      Draw it in on the grid.

   c. The vertex lies on the line of symmetry. What is the *x* value for your line of symmetry? x = _____
      Use the equation $y=(x-2)(x+4)$ to find the value of *y* when x = _____ (the value of the line of symmetry).
      Plot this on the grid.

   d. The vertical intercept occurs when *x* = 0. Use the equation $y=(x-2)(x+4)$ to find the value of *y* when x = 0.
      Plot this on the grid.

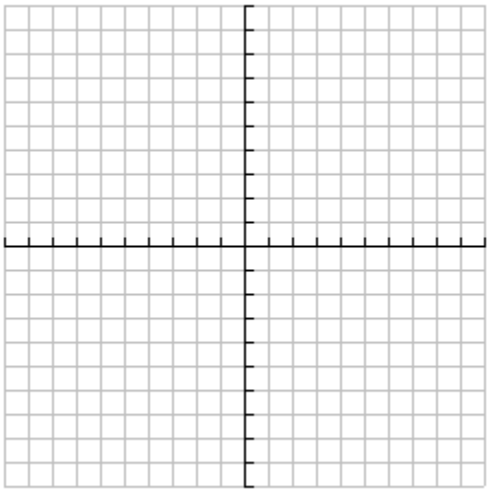
   e. Using the line of symmetry, find another point that should be part of the graph of $y=(x-2)(x+4)$.
      (Hint: the vertical intercept can be reflected.)

   f. Pick another value (like *x* = 3) to find another point.
      Use the equation $y=(x-2)(x+4)$ to find the value of *y* when x = 3 (or whatever you chose).
      Plot this on the grid.

   g. Did you plot the symmetric point to the one you just found? If not, do so now.

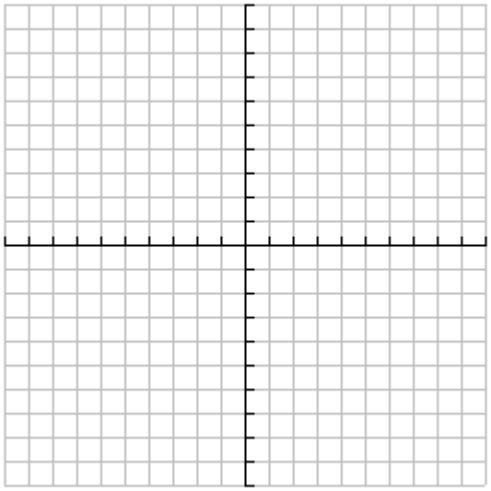
   h. With your seven points plotted, try to sketch a smooth curve for the graph of $y=(x-2)(x+4)$.

2. Use the same strategy as above to try to make a high quality graph of the $f(x)=(x-5)(x+1)$ by hand.
   Be sure to label points on your graph.

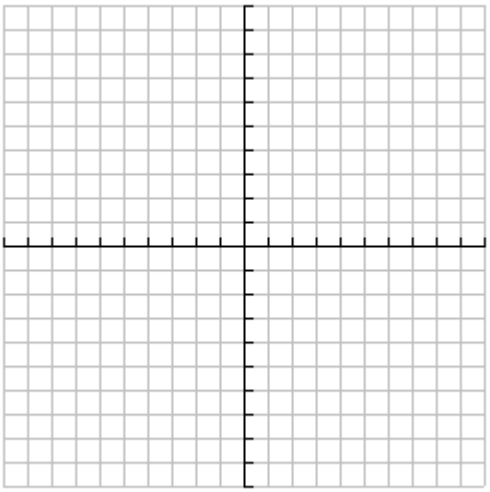


3. Make high quality graphs of the following by hand. Label the points you use to create the graph. (You may need a different scale for some.)

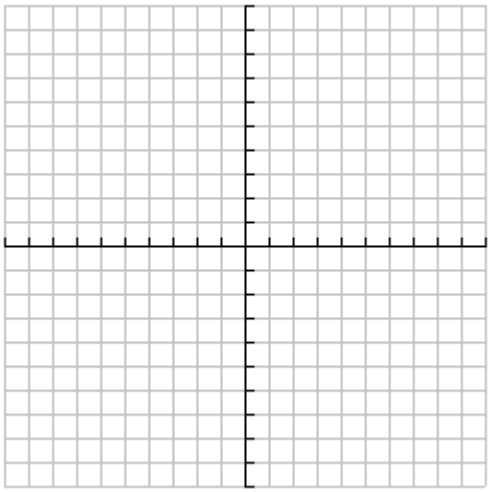
$g(x) = (x-1)(x-7)$



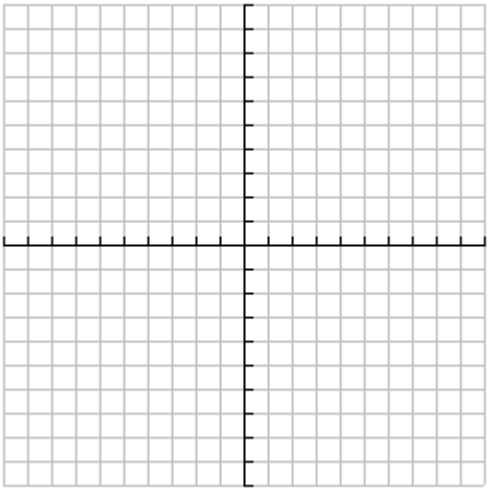
$h(x) = (x+2)(x-6)$



$k(x) = -(x+5)(x-3)$



$y = -0.5(x+4)(x-6)$



Part C: Summarize your thoughts.

Suppose a friend of yours was absent and needs to get caught up quickly. Write your explanations to the following with your friend in mind. Be extra clear with your words.

1. Explain how you see the *x* intercepts (also called roots) in the function $y = (x - 8)(x + 10)$ without graphing it.

2. Describe how you can find the roots for any quadratic function written in factored form by looking at just the equation.

3. Explain how you can find the line of symmetry if you know the *x* intercepts of a quadratic function written in factored form by looking at just the equation.

4. Explain how you can find the *y* intercept of a quadratic function written in factored form by looking at just the equation.

5. Explain a strategy you can use for graphing a quadratic function by hand when it's written in factored form.