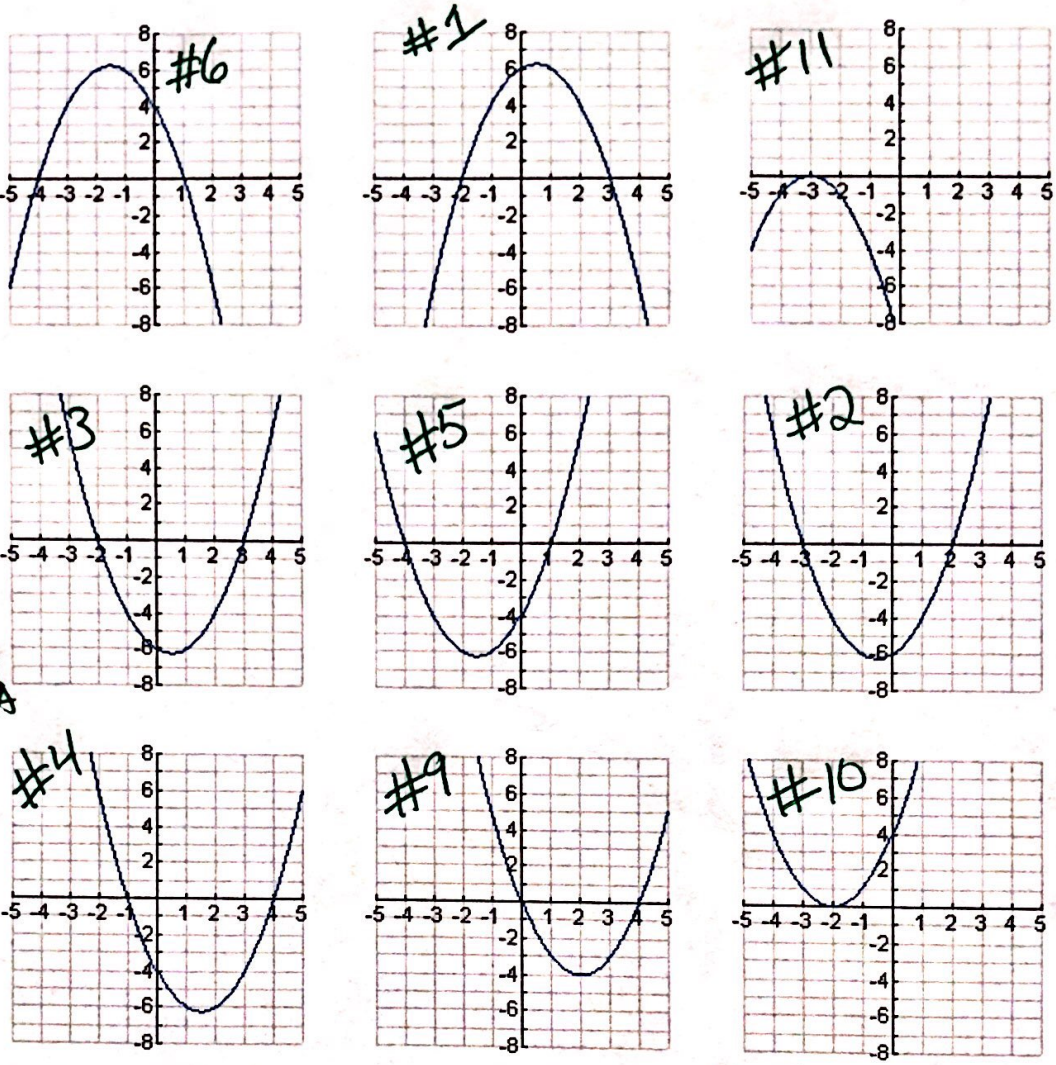
Name: _____ Date: _____ **#73 Graphing from Intercept form**

Part A: Match each graph to its equation. Write the number of the problem on the graph that it matches. Not all equations will be used.

1. $A(x)=-(x+2)(x-3)$
   concaves down
   x-int: (-2,0) & (3,0)
2. $f(x)=(x-2)(x+3)$
   opens up
   x-int: (2,0) & (-3,0)
3. $g(x)=(x-3)(x+2)$
   opens up
   x-int: (3,0) & (-2,0)
4. $h(x)=(x-4)(x+1)$
   opens up
   x-int: (4,0) & (-1,0)
5. $k(x)=(x-1)(x+4)$
   opens up
   x-int: (1,0) & (-4,0)
6. $t(x)=-(x-1)(x+4)$
   opens down
   x-int: (1,0) & (-4,0)
7. $B(x)=(x-1)(x-4)$
   opens up
   x-int: (1,0) & (4,0) N/A
8. $D(x)=-(x-1)(x-4)$
   opens down
   x-int: (1,0) & (4,0) N/A
9. $C(x)=x(x-4)$
   opens up
   x-int: (0,0) & (4,0)
10. $J(x)=(x+2)(x+2)$
    opens up
    x-int: (-2,0)
11. $M(x)=-(x+3)(x+3)$
    opens down
    x-int: (-3,0)
12. $P(x)=(x+4)(x+1)$
    opens up
    x-int: (-4,0) & (-1,0) N/A



Part B. Sketch each of the following functions on your own paper. **On that paper show all work t**
find the axis of symmetry, vertex, and y intercept (also known as f(0)).
On this page, multiply the binomials (review skill).

13. $f(x)=(x-5)(x+1)$

14. $g(x)=\frac{1}{4}(x+2)(x+10)$

ON SEPARATE SHEET BELOW

13) $f(x) = (x-5)(x+1)$

x-int: $(5,0)$ $(-1,0)$

q.o.s: $\frac{5-1}{2} \rightarrow \frac{4}{2} \rightarrow 2$

$x = 2$

vertex: $(2-5)(2+1) \rightarrow (-3)(3) \rightarrow -9$

$(2,-9)$

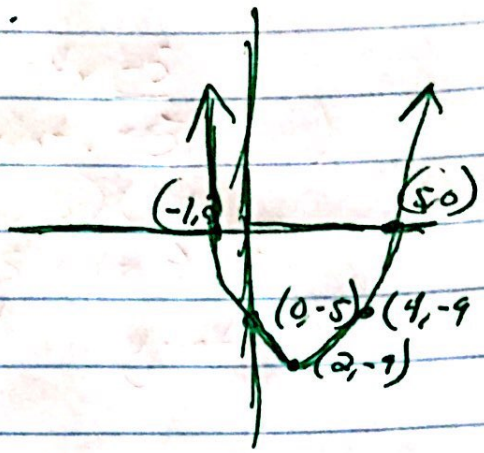
multiplied out: $(x-5)(x+1)$

$x^2 - 4x - 5$

y-int: $(0-5)(0+1) \rightarrow (-5)(1)$

$(0,-5)$

sketch:



14) $g(x) = \frac{1}{4}(x+2)(x+10)$

x-int: $(-2,0)$ $(-10,0)$

q.o.s: $\frac{-2-10}{2} \rightarrow \frac{-12}{2} \rightarrow -6$

$x = -6$

vertex: $(-6+2)(-6+10) \rightarrow (-4)(4) \rightarrow 16$

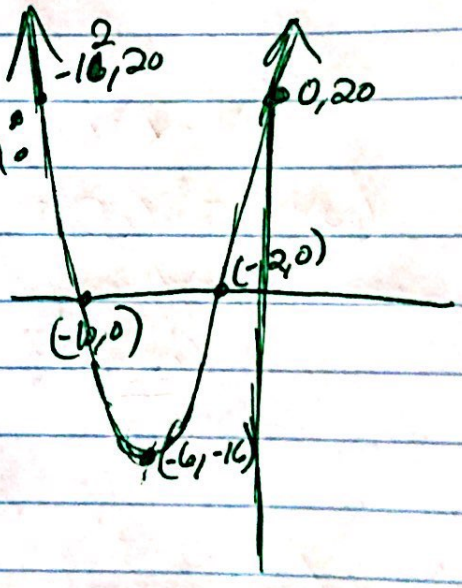
$(-6,-16)$

y-int: $(0+2)(0+10) \rightarrow (2)(10) \rightarrow 20$

$(0,20)$

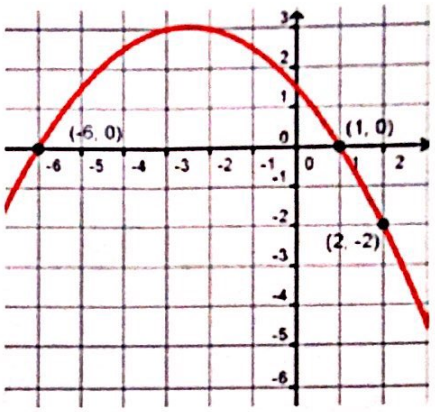
multiplied out: $\frac{1}{4}(x^2+12x+20)$

sketch:



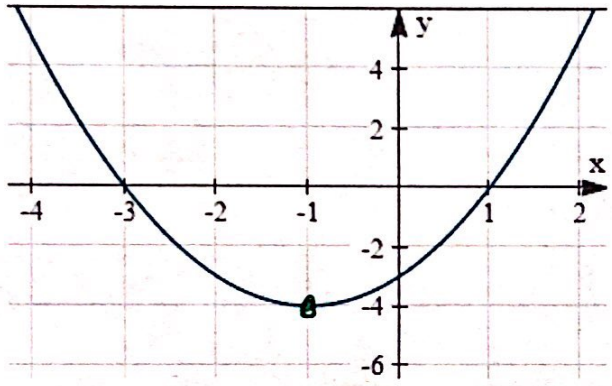
Part C. Write the equation of each parabola in intercept form. The first one is done for you.

This parabola has intercepts (-6, 0) and (1, 0) and goes through (2, -2)



$$f(x) = a\,(x+6)(x-1)$$
$$-2 = a\,(2+6)(2-1)$$
$$-2 = a\,(8)(1)$$
$$\frac{-2}{8} = \frac{8a}{8}$$
$$-\frac{1}{4} = a$$
$$f(x) = -\frac{1}{4}(x+6)(x-1)$$

15.



$g(x) = a\,(x+3)(x-1)$

$-4 = a\,(-1+3)(-1-1)$

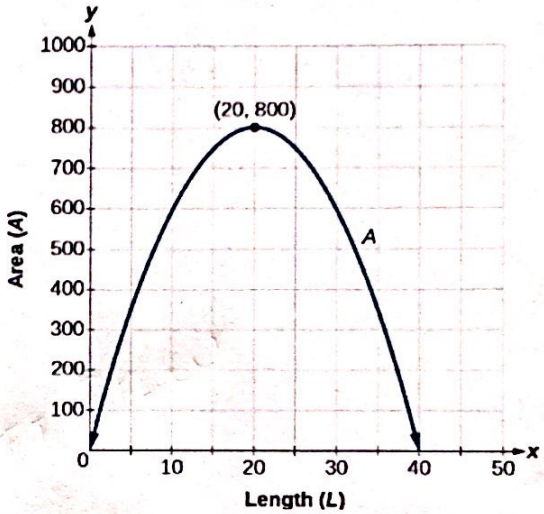
$-4 = a\,(2)(-2)$

$\frac{-4}{-4} = \frac{a\,(-4)}{-4}$

$1 = a$

$g(x) = (x+3)(x-1)$

16.



$h(x) = ax(x-40)$

$800 = a(20)(20-40)$

$800 = a(20)(-20)$

$\frac{800}{-400} = \frac{a(-400)}{-400}$

$-2 = a$

$h(x) = -2x(x-40)$