Name: ______________________ **Date:** __________ **#74 Solving from vertex form**

1. Explain why you cannot just always say it is the opposite of the number after x in the parenthesis.

Because if there is a coefficient in front of the x, then it too affects the solution

2. Explain why you can only use this method to find x intercepts instead of the intersection of a constant function and the parabola. [For example, why can't you solve $5 = (x+2)(x-7)$]

The main usage of intercept form is to be able to set whatever is in the parenthe $=$ to 0, but with that 5 we can't do that. First step to finding the solution between 2 functions is to set them $=0$ and when we move that 5 over to the other side making it -5, we can not longer set the parenthesis $=0$. We would ~~are~~ need to multiply to standard form

Do the work for the rest on your own paper!
Solve each quadratic below. Then, give the number and type of solutions, its domain, range, and axis of symmetry.

3. $f(x) = (5x + 3)(x - 5)$ a.o.s $= x = -8$
$x = -\frac{3}{5}, 5$
1 real integer, 1 real rational
domain: $(-\infty, \infty)$
Range: $(-8, \infty)$

4. $g(x) = \frac{1}{2}(x - 2)(x - 6)$ a.o.s $= x = 4$
Solu. $= 2, 6$
2 real integers
domain $(-\infty, \infty)$ Range $(4, \infty)$

5. $H(x) = -3(2x + 1)(2x - 11)$
Sol.: $-\frac{1}{2}, \frac{11}{2}$ a.o.s: $x = 2.5$ or $\frac{5}{2}$
2 real rationals range: $(2.5, -\infty)$
domain: $(-\infty, \infty)$

6. $F(x) = -1/4(x - 4)(x - 8)$
Solu: 4 and 8 a.o.s. $x = 6$
2 real integers range: $(6, -\infty)$
domain $(-\infty, \infty)$

7. $R(x) = (5x - 6)(x + 6)$
Sol.: $\frac{6}{5}$ and -6 a.o.s: $x = -2.4$ or $-\frac{12}{5}$
1 real rational and 1 real integer
domain $(-\infty, \infty)$ range $(-2.4, \infty)$

8. $F(x) = 4x(x - 8)$
Sol: 0 + 8 a.o.s $x = 4$
2 real integers range $(4, \infty)$
domain $(-\infty, \infty$

9. $G(x) = -3(2x - 3)(2x + 5)$
Sol $= \frac{3}{2}$ and $-\frac{5}{2}$ a.o.s $x = -\frac{1}{2}$
2 real rational range $(\frac{1}{2}, -\infty)$
domain $(-\infty, \infty)$

10. $H(t) = 1/2t(t - 4)$
Sol: 0 + 4 a.o.s $x = 2$
2 real integers range $(2, \infty)$
domain $(-\infty, \infty)$

11. Looking back at your answers to number and type of solutions on 3-10, explain why not all quadratics an be written in intercept form.

When I solved 8-10, I got x-intercepts being real rational or integers, but I know from the earlier part of the unit that a quadratic doesn't always cross the x-axis in real rational and integer places so those can't have an intercept form.