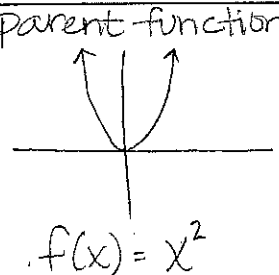
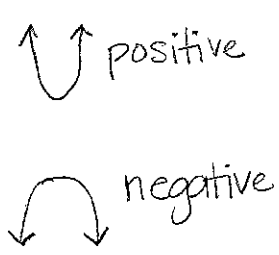
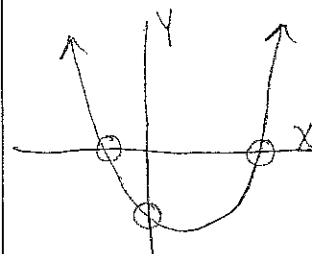
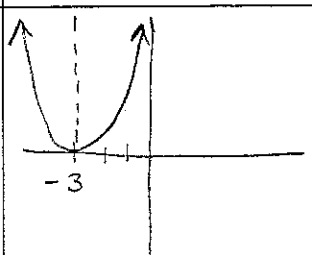
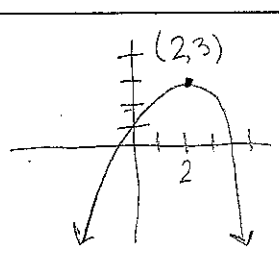


Name: Key

Analytic Geometry Vocabulary Study List (Unit 4)

| VOCABULARY WORD | KEYWORD | PICTURE | DEFINITION | SYMBOL/UNIT/FORMULA ETC. |
|-----------------------------|----------------|---|--|--|
| Quadratic function | | <p>parent function</p>  <p>$f(x) = x^2$</p> | <p>a 2nd degree polynomial function of the form $f(x) = ax^2 + bx + c$ a, b, c are real numbers and $a \neq 0$</p> | <p>$f(x) = x^2$ $f(x) = ax^2 + bx + c$</p> |
| parabola (“bowl”) | U-shaped graph |  <p>positive negative</p> | <p>the locus of points equidistant from a given point (focus) and a given line (directrix)</p> | <p>“U”</p> |
| Intercepts (roots) | interception |  | <p>the point (x, y) where the graph crosses the x-axis or y-axis</p> | <p>y-intercept $(0, -2)$ x-intercept $(2, 0)$</p> |
| Axis of symmetry | symmetry |  | <p>a line that divides a plane figure into 2 congruent reflected halves.</p> | <p>$x = \frac{-b}{2a}$</p> |
| vertex | |  | <p>the point where the parabola crosses its axis of sym. highest or lowest point</p> | <p>(x, y) (h, k)</p> |

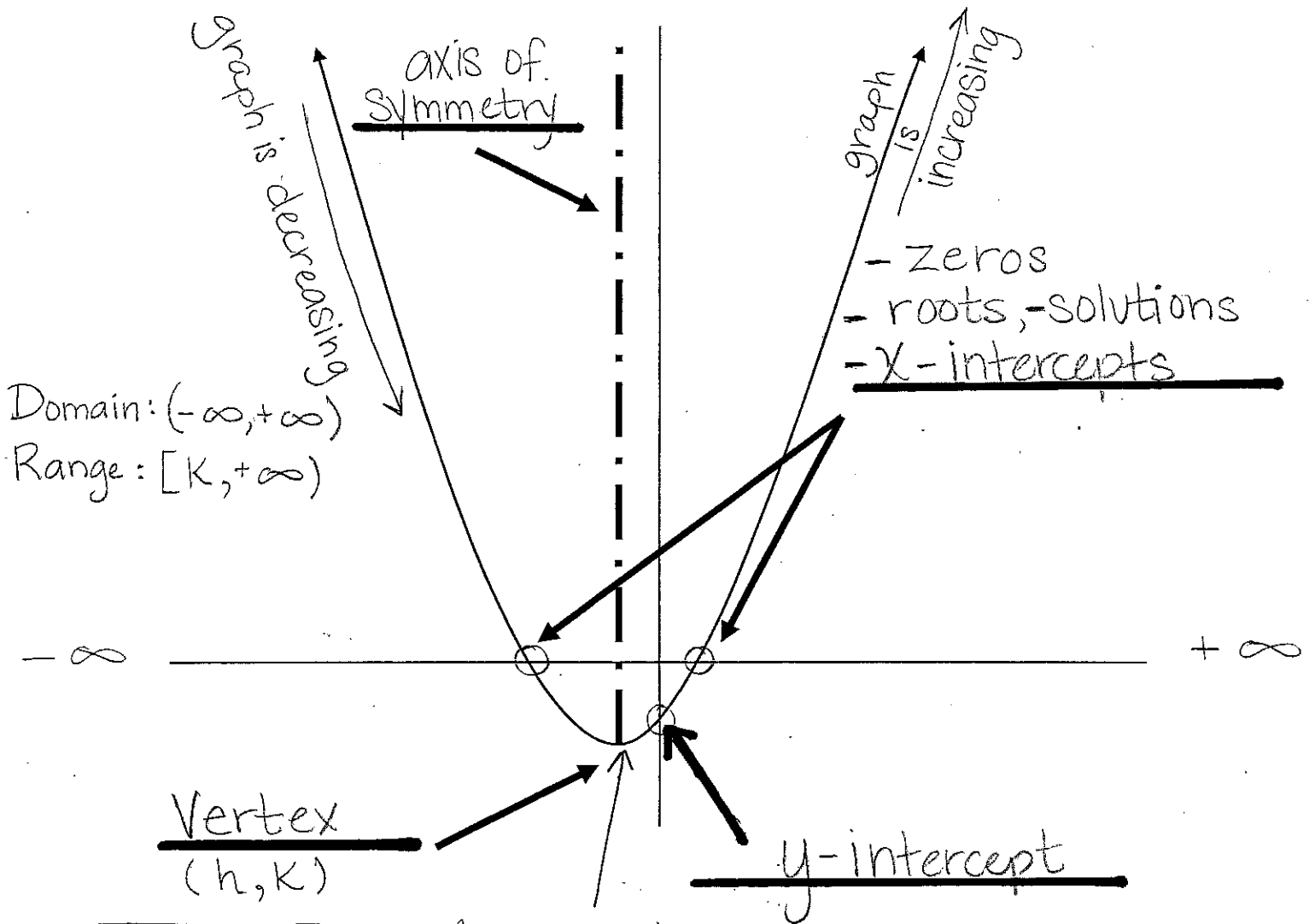
Properties of Parabolas

There are a few specifics that we need to know about quadratic equations.

We need to know the following things.

- | | |
|-----------------------|---------------------------------|
| 1. Vertex | * 5 basic characteristics |
| 2. Domain and Range | * parabola opens "up" or "down" |
| 3. Intercepts (Roots) | depending on the leading |
| 4. Axis of Symmetry | coefficient. |
| 5. y-intercept | |

Label the four things on the diagram.



Domain: $(-\infty, +\infty)$
 Range: $[k, +\infty)$

Standard form
 $f(x) = ax^2 + bx + c$

Vertex form
 $f(x) = a(x-h)^2 + k$
 (h, k)

