**Graphing Parabolas Worksheet (Simple)**

1. Function to be graphed: _____

2. Which way up is the parabola? For $y = ax^2 + bx + c$ , is $a$ positive (concave up ∪, smiley face ☺) or is $a$ negative (concave down ∩, frowny face ☹)? Sketch the parabola's shape:

3. Calculate table of values (change x-values if necessary):

| *x* | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| y | | | | | | | | | | | |

4. Can you factorise the relation? This will give the $x$-intercepts. There may be 2, 1 or 0 $x$-intercepts. (Or use $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$)

Coordinates: (_____ , _____) , (_____ , _____)

5. Find the $y$-intercept. From table or let $x = 0, then\ y =$ Coordinates: (_____ , _____)

6. Can you find the axis of symmetry – half way between the two $x$-intercepts, or given by $x = \frac{-b}{2a}$

$x = \frac{-(\quad)}{2(\quad)} = \frac{\qquad}{\qquad} =$

7. Find the turning point by substituting the axis of symmetry x value into the relation to find y.

$x\text{-}value =$

$y =$ Coordinates: (_____ , _____)

8. Sketch the graph by drawing x- and y-axes scaled to suit your calculated values, then plotting the $x$-intercept(s), $y$-intercept, and the turning point, then joining with a smooth parabolic curve: