

The Math Center presents:

A Tip Sheet on

QUADRATIC EQUATIONS

1. Write the quadratic equation in the form:

$$y = ax^2 + bx + c$$

2. If $a > 0$, the graph of the parabola opens up. If $a < 0$, the graph opens down.

3. **To find the vertex:** The x coordinate of the vertex is equal to $-\frac{b}{2a}$

Take this value for x and substitute it into the quadratic equation to find y.

4. **The axis of symmetry** always has the equation $x = -\frac{b}{2a}$

5. **To find the focus point**, set $\frac{1}{4p} = a$

and solve for p. The focus point is on the axis of symmetry, p distance from the vertex. It is inside the parabola.

6. **To find the equation of the directrix**, remember that it is a line “p” distance from the vertex, outside the parabola.

7. **To find the x-intercepts**, use the trace key or graph and use the intersect key. $y_2 = 0$

8. **To find the y-intercepts**, evaluate the quadratic equation at $x = 0$

MCC offers a **Math Lab** at both the Bedford and Lowell campuses. Tutoring is available weekdays and some evenings, at no charge. Schedules are posted on the door. Drop in.

In Bedford: AR 214, Tel: (781) 280-3707

In Lowell: City Campus, Room 406, Tel. (978) 656 - 3368