

STUDY GUIDE = LINEAR vs. QUADRATIC

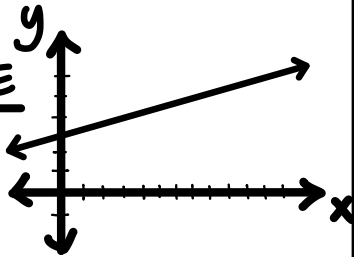
LINEAR

$$y = mx + b$$

HIGHEST POWER → ONE

GRAPHS → A LINE

↳ using TWO points →
y-intercept & another
point using slope



HOW TO:

1. Set the equation equal to y
2. $b = y$ -intercept which translates to a point on the line $(0, b)$. Plot this.
3. From the y -intercept, use the slope $= m$. Make m a fraction so the numerator is how you move left/right and the denominator is how you move up/down.
4. Draw a line connecting the two points.

MOST COMMONLY FORGOTTEN → that the x and y in the equation $y = mx + b$ represents all the coordinates (x, y) for every point on the line.

OTHER FORMULAS TO KNOW:

POINT-SLOPE FORM

$$y - y_1 = m(x - x_1)$$

TWO INTERCEPT FORM

$$\frac{x}{a} + \frac{y}{b} = 1$$

STANDARD FORM

$$ax + by = c$$

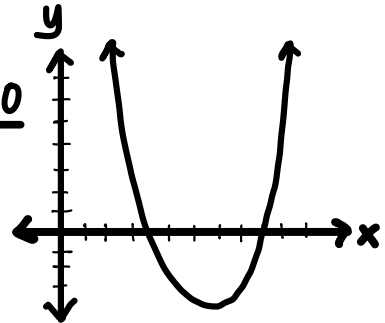
QUADRATIC

$$ax^2 + bx + c = 0$$

HIGHEST POWER → TWO

GRAPHS → A PARABOLA

↳ using THREE points →
vertex & 2 x -intercepts



HOW TO:

1. Set the equation equal to zero
↳ this may also be equal to y or $f(x)$.
2. Use factoring, complete the square or the quadratic formula to get the x -intercepts
↳ x -intercepts are also called solutions/zeros.
3. Use complete the square to get the coordinates of the vertex
4. Plot & connect with a smooth curve

KEY ASPECT TO REMEMBER → that complete the square will help you get every aspect you need when dealing with a quadratic

OTHER FORMULAS TO KNOW:

QUADRATIC FORMULA

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

VERTEX FORM

$$y = a(x - h)^2 + k$$

FACTORED FORM

$$y = a(x - p)(x - q)$$