1.1 Graphs and Models

Sketching a Graph:

1. **Numerical Approach** - table of values
   ** (x, y) → on the graph, then it satisfies the equation
2. **Graphical Approach** - "$y=$" form
   ** $x - y^2 = 1$
   $x - 1 = y^2$
   $\pm\sqrt{x-1} = y$ * enter as 2 graphs

3. **Analytical Approach** - $y = mx + b$

   Determine Intercepts:

   x-intercepts - form $(a, 0)$
   * Substitute $y = 0$ and solve for x

   y-intercepts - form $(0, b)$
   * Substitute $x = 0$ and solve for y

   *** Can use a graphical approach to approximate if difficult to obtain analytically.

Consider Symmetry: Symmetric with respect to:

y-axis: * Reflection
replace x with $-x$ yields the same equation

x-axis: * Reflection
replace y with $-y$ yields the same equation

origin: * Rotation of 180°
Replace x with $-x$
y with $-y$
yields the same equation

HOMEWORK

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