

Linear Equations

To determine the equation of a line, you need:

① y-intercept and slope $\Rightarrow y = mx + b$
 (b) (m)

② point and slope $\Rightarrow y = mx + b$ ← find
 (x,y) (m)

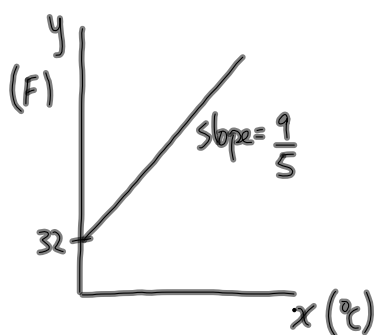
③ two points (x_1, y_1) and (x_2, y_2)

- find slope: $m = \frac{\Delta y}{\Delta x}$
 $m = \frac{y_2 - y_1}{x_2 - x_1}$

- now you know your slope and two points.... So pick a point (x, y) and your slope and

Sub into $y = mx + b$ ↑ find b

Consider a Graph of a linear equation:



(Relationship between Fahrenheit^y and Celsius^x temperatures)

$$y = mx + b$$

$$y = \frac{9}{5}x + 32$$

The y-intercept is 32 F (The fahrenheit temperature when it is 0°C)

The slope is $\frac{9}{5}$ (units of $\frac{F}{C}$) tells us that for an increase of 5°C in temperature will be the same as an increase of 9F in temperature

Home Heating Costs (Practice - Answers)

a) $y = -0.20x + 4.25$

b) y -int = \$4.25 When the temp is 0°C it costs \$4.25/day to heat this house.c) x -int = 21.25 When the temp is 21.25°C the heating costs are zerod) At -18°C it costs \$7.85 per daye) A cost of \$8/day means a temp of -18.75°C