

Section 1.4
LINEAR FUNCTIONS AND MODELS

A FUNCTION describes a DEPENDENT relationship between quantities.

For instance, the value of $2x + 1$ depends on the x - value.

Read as “ $2x + 1$ is a function of x ”

This is written as: $f(x) = 2x + 1$

↑ replaces the “y”

$$f(x) = 2x + 1 \quad (0, 1) \text{ y-int}$$

Evaluate

$$f(1) = 2(1) + 1 = 3$$

$$f(0) = 2(0) + 1 = 1$$

$$f(-\frac{1}{2}) = 2(-\frac{1}{2}) + 1 = 0 \quad (-\frac{1}{2}, 0) \text{ on the x-axis}$$

If $f(\text{number}) = 0$ then that **number** is called a zero of function f .

Language

$$f(x) = 3x - 2$$

f is a function of x

$$r(t) = .2t + 23$$

r is a function of t

Alg III 1.4 lesson

Example

The senior class is renting the La Crosse Center Ballroom for \$400 for their Fall Festival dance. Tickets for the dance are \$8 per person.

- a) Express the net income (I) as a function of the number (n) of tickets sold.

$$I(n) = 8n - 400$$

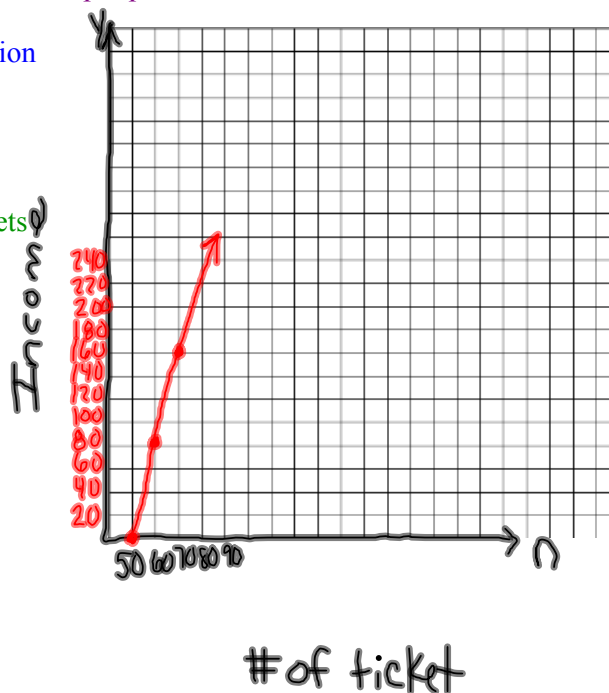
- b) Graph the function. How many tickets must be sold for the seniors to begin making a profit?

$$0 = 8n - 400$$

$$\frac{400}{8} = \frac{8n}{8}$$

$$n = 50$$

At least 51 tickets



Homework

p22 #1, 3, 5, 6, 7, 15,
16abd