Announcement:

Quiz on Tuesday, 3/13
Sections 4.1 - 4.5

Homework Review - 4.5

(40) $60 total

$4/hr parking

C = total cost

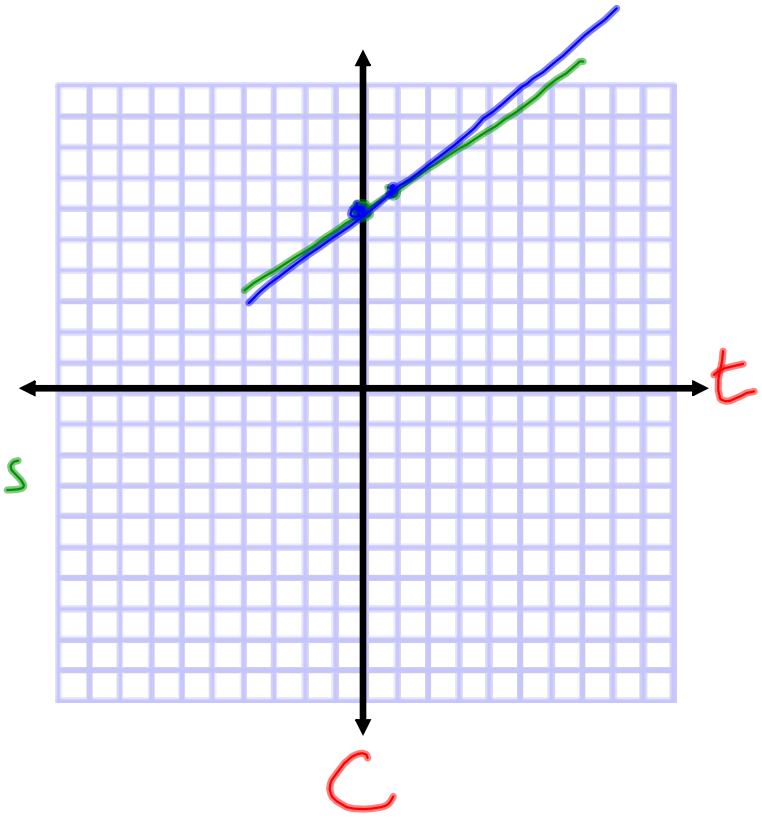
t = time in hours

C = 60 + 4t

C = 4t + 60

"y" "x"

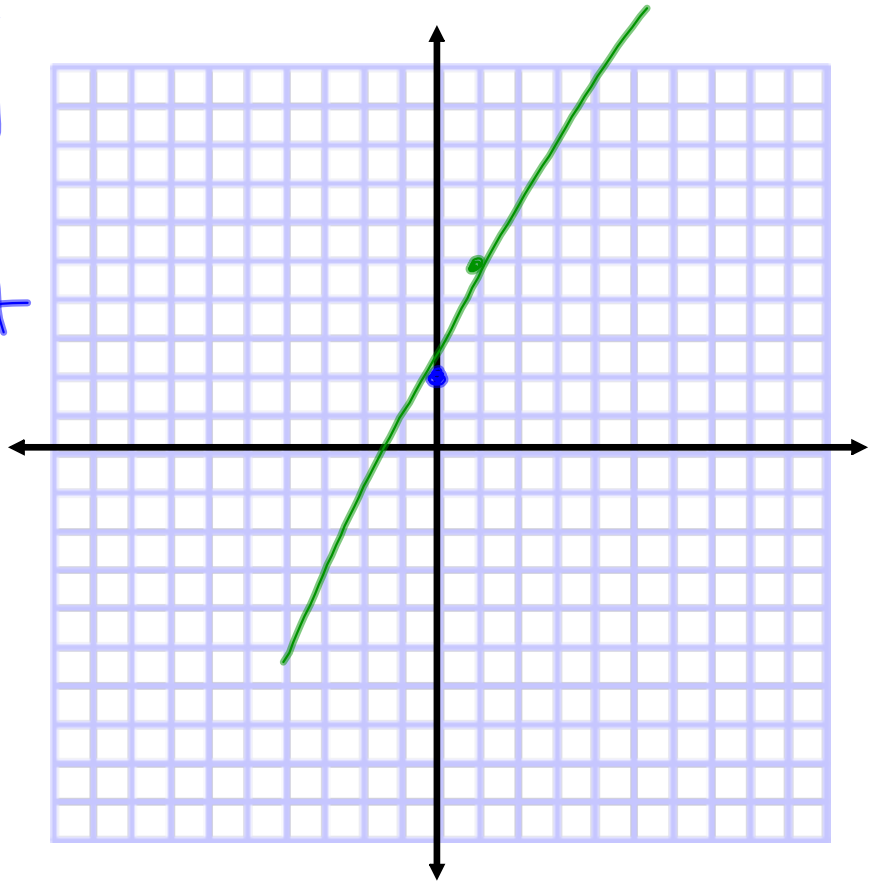
C = 5.5t + 60



22 $y = \frac{3}{1}x + 2$

slope = m = $\frac{\text{rise}}{\text{run}}$

b = y-int (0, 2)



Graphing Linear Functions:

$y = mx + b$ ← linear equation

$f(x) = mx + b$

$f(7) = m(7) + b$

$g(r) = 5r + 2$ ⇒ $y = 5x + 2$

$g(2) = 5(2) + 2$

$g(2) = 10 + 2$

$g(2) = 12$

Function notation

$x = a$ (vertical line) → CAN'T MAKE A FUNCTION!

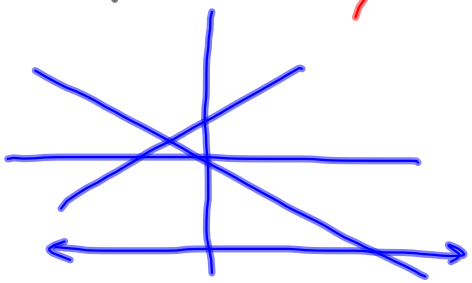
Find an x-value

Domain and range

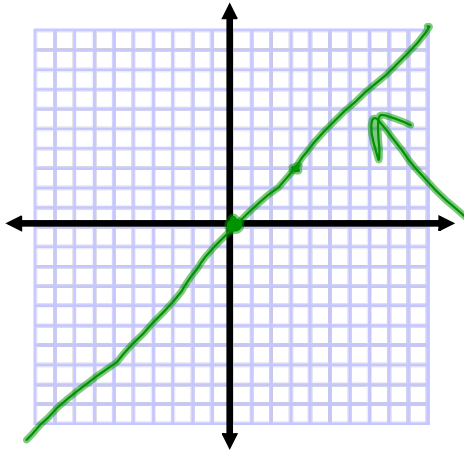
Domain: All permissable "x" values

Range: All possible "y" values

Families of Functions:



Similar characteristics
(ex. linear functions)

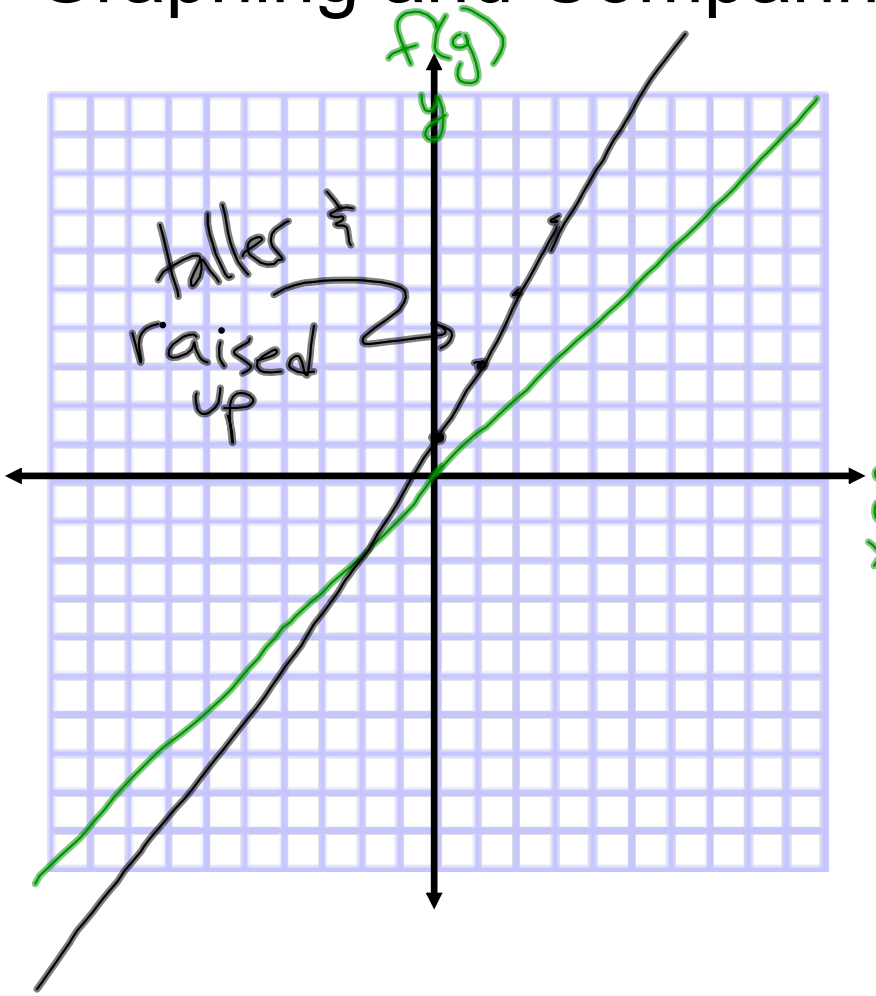


Parent function – the simplest function in a family of functions

linear: $f(x)=1x+0$

$f(x)=x$

Graphing and Comparing Linear Functions



Graph as always ...

$f(g) = 2g + 1 \cong$

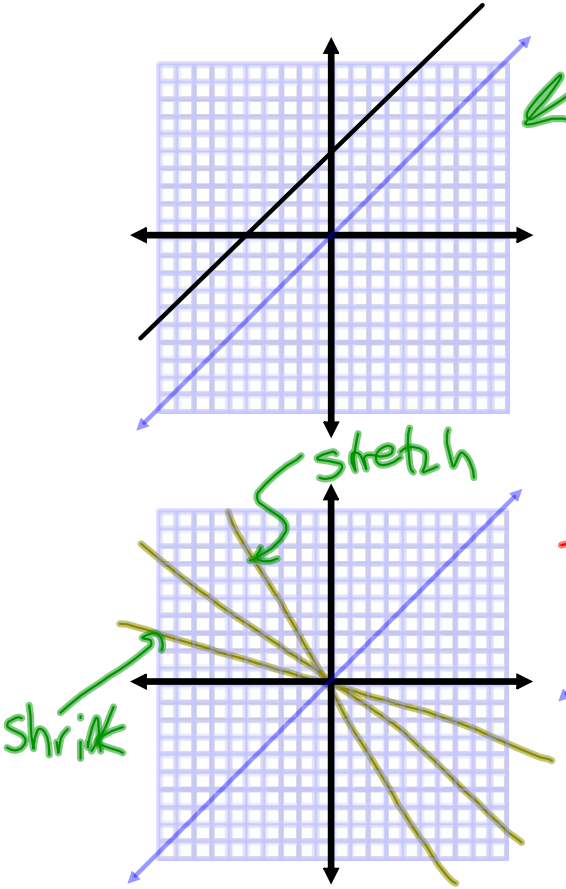
$y = 2x + 1$

Compare to parent function

$f(g) = g \cong f(x) = x \cong$

$y = x$

Comparing Linear Functions, continued...



Vertical Translations

$g(x) = x + b$

Vertical Stretches or Shrinks

$g(x) = mx$ where $m > 0$

Vertical Stretches or Shrinks with Reflections

$g(x) = mx$ where $m < 0$

Evaluate the function when $x = -3$, 0, and 2.

1. $f(x) = 15x + 4$ $x=3$

2. $g(x) = -9x + 1$ $x=0$

3. $p(x) = -7x - 5$ $x=2$

4. $h(x) = 3.25x$

$y=mx+b$

$f(x)=15x+4 \; ; \; x=-3$

$f(-3)=15(-3)+4$

$=-45+4$

$f(-3)=-41$

Find the value of *x* so that the function has the given value.

13. $f(x) = 4x - 2; 18$

15. $q(x) = 6 - 5x; 21$

$y = 4x - 2$

$y = 18$

$18 = 4x - 2$

$+2 \quad +2$

$\frac{20}{4} = \frac{4x}{4}$

$x = 5$

14. $n(x) = 7x + 4; 39$

16. $g(x) = -3x + 8; 14$

$n(x) = 7x + 4$ when $n(x) = 39$

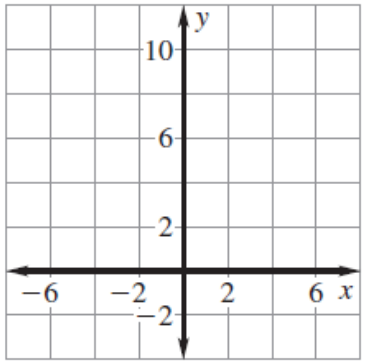
$7x + 4 = 39$

$-4 \quad -4$

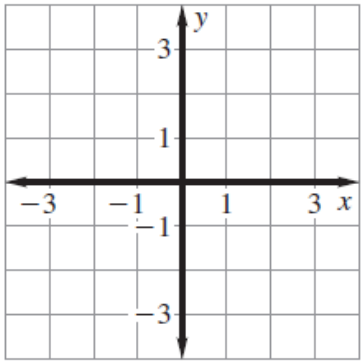
$\frac{7x}{7} = \frac{35}{7}$

$x = 5$

24. $g(x) = x + 7$



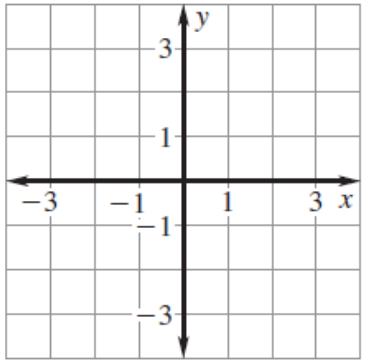
25. $m(x) = 5x$



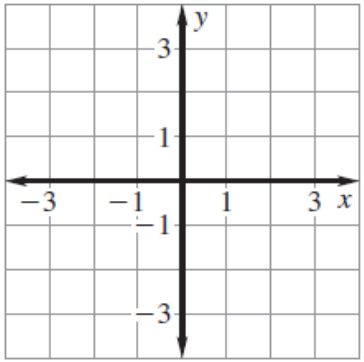
Graph -
and compare to
parent function!

f(x) = x

27. $p(x) = \frac{1}{3}x$



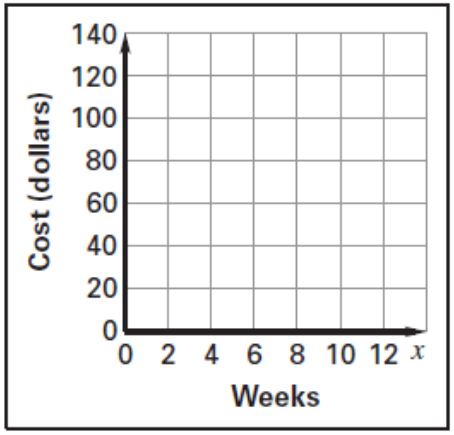
28. $n(x) = -2x$



Pool Membership A pool membership during the summer costs \$7 per week. The total cost of a membership is given by $f(x) =$. The pool also rents out lockers for \$2 per week. The total cost of a membership and a rental is given by $g(x) =$.

a. Graph both functions. How is the graph of f related to the graph of g?

b. What is the difference between a 12-week membership if you get a locker and if you don't? *Explain* how you got your answer.



Homework:

p. 265, 23-32 by 3, 40, 41, 43