Prof. Agnes (A^2) Azzolino
www.mathnstuff.com/math/math.htm

Hello,

This is your quiz. All I need handed in is the sketch of question # 20.

This first page is instructions.

The 2nd and 3rd pages are notes on the graphing of functions. Basic or "Parent" functions are the first 8 functions found at:
http://www.mathnstuff.com/math/spoken/here/2class/300/fx/300fxGraphs/FXallWIDE.jpg

The 2nd page explains how the expressions and the graphs are related, how the "children" or more complicated functions are generated from "parent" functions.

The 3rdh page provides practice graphs and 4th the answers to page 3 problems.

The 5th page has the 1 question quiz..

Email a completed page 5 ONLY

Rename the file as ###.First.Last.Qnumber.

Attach it to an email by 11:59 pm this Friday night.

Mail the quiz to either precalc@mathnstuff.com.

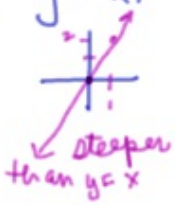
Stay safe, a^2

Create "Children" Functions children1.gif ©2/7/2024 A²

think $y = a\,f(bx-c)+d$

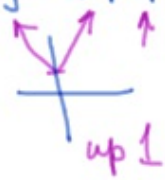
a = dilates - stretches, shrinks, reflects about a horizontal line
+ think "slope"

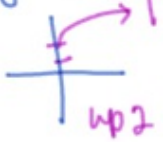
1. $y = 2x$ 2. $y = \frac{1}{2}x$ 3. $y = 2|x|$ 4. $y = -\sqrt{x}$ 5. $y = -x^2$

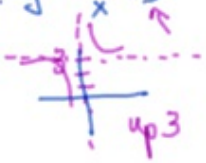


d = range change - if $d = 0$ no translation/shift in the vertical
$d > 0$ shifted up
$d < 0$ shifted down

6. $y = x^2 - 2$ 7. $y = |x| + 1$ 8. $y = \sqrt{x} + 2$ 9. $y = \frac{1}{x} + 3$







c = domain change - if $c = 0$ no translation/shift in the horizontal
think "re-center the function"
think solve $x - c = 0$ if $c = 0$ no shift
$+c \quad +c$ $c > 0$ shift LEFT
$x = c$ $c < 0$ shift RIGHT
think opposite to graph the shift

vertex at (4,0)
$x - 4 = 0$
$x = 4$

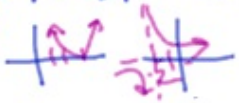
10. $y = (x-4)^2$

11. $y = \sqrt{x+1}$

$x + 1 = 0$
$x = -1$

12. $y = |x-3|$

$x - 3 = 0$
$x = 3$



13. $y = \frac{1}{x+2}$

$x + 2 = 0$
$-2 \quad -2$
$x = -2$

the impacts of b are difficult to see

b • stretch horizontally, speeds up/slows down f(x), changes period

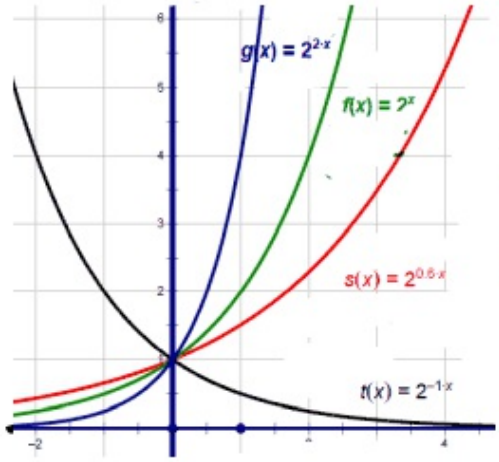
b • reflects about a vertical line

14. $y = \sqrt{-x}$ $-x \geq 0$, $x \leq 0$

b = -1, flip is over a vertical line, x=0

where b > 0
b > 1 faster
b = 1 no change
b < 1 slower

where b < 0
b > -1 faster & flipped
b = -1 no speed change but flipped
b < -1 slower & flipped

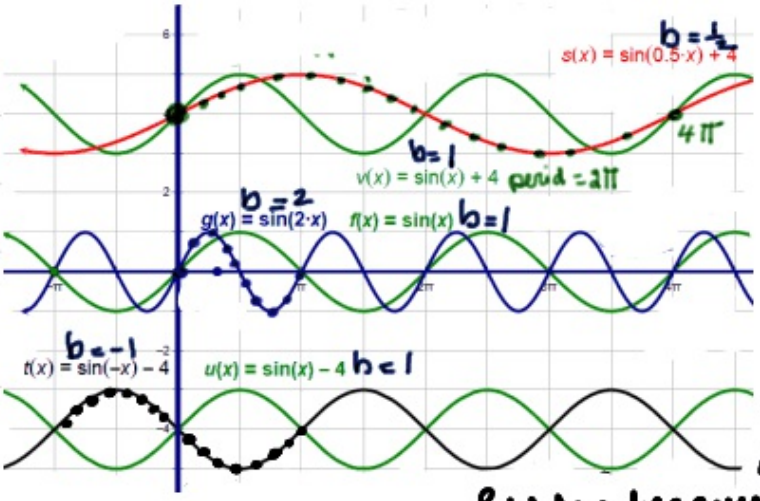


b = 2 faster growth

b = 1 normal growth

b = .6 slower growth

b = -1 vertical flip decay, not growth



cycle happens half as fast
period = 4π

$\text{period} = \frac{2\pi}{\frac{1}{2}} = 4\pi$

cycle is twice as fast
period

$\text{period} = \frac{2\pi}{b} = \frac{2\pi}{2} = \pi$

b = -1

t(x) is a reflected about a vertical line but this is hidden because the functions are odd.

Sketch children3.gif ©1/7/2024 A2

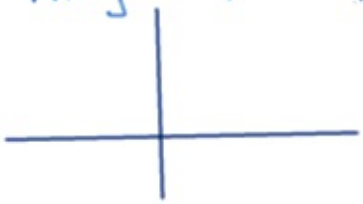
Think of more than 1 influence

16. $y = (x-4)^2 + 2$

17. $y = -\sqrt{x+4}$

18. $y = \frac{1}{x-1} + 2$

19. $y = -|x+2| + 3$



See answers before taking the quiz.

ANSWERS children 4. gcf ©2/7/2024 A2

think of more than 1 influence

Sketch

16. $y = (x-4)^2 + 1$ horizontal shift, vertical shift

$x-4=0$
$+4+4$
$x=4$

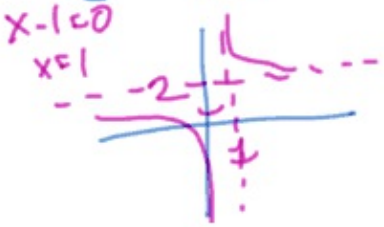
17. $y = -\sqrt{x+4}$ reflect about horiz. line; horizontal shift

$x+4 \geq 0$
$x \geq -4$

refl about horiz line

18. $y = \frac{1}{x-1} + 2$

$x-1=0$
$x=1$



19. $y = -|x+2|+3$

$x+2=0$
$x=-2$

$(-2, 3)$ vertex

1 question sketch as a quiz.

- Sketch #20
- screencapture / take a picture w/ camera
  draw in a document
  create a file
- rename file as

  ###.First.Last.Q3
- email as attachment

  to: precalc@mathnstuff.com

20.

$y = -\sqrt{-4+x}$