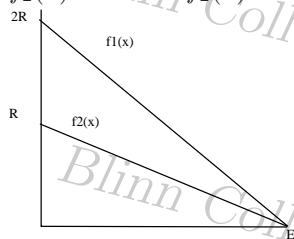


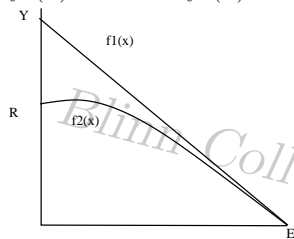
- Use function notation to describe the way the second variable (DV) depends upon the first variable (IV). Determine the domain and range for each, determine if there is a positive, negative, or no relationship, and explain your answers.
 - IV: an acute angle R in a right triangle :: DV: the area A of the triangle if the hypotenuse is a fixed length H .
 - IV: one leg L of a right triangle :: DV: the hypotenuse H of the right triangle if the other leg is 2
 - IV: the hypotenuse H of a right triangle :: DV: the other leg L of the right triangle if one leg is 5
- Use function notation to describe the way the second variable (DV) depends upon the first variable (IV). Determine the domain and range for each, determine if there is a positive, negative, or no relationship, and explain your answers.
 - IV: temperature C in degrees Centigrade :: DV: temperature F in degrees Fahrenheit.
 - IV: any real number x :: DV: y , the larger of x and $1 - x$
 - IV: the angle θ of a sector in a circle of a constant radius R :: DV: the area A of the sector.
- Suppose the following: The function f exists on $(-\infty, \infty)$, is periodic with period 3, $f(-2) = 0$, $f(-1.5) = 1$, f is linear between -2 and -1.5 , and f is linear between -1.5 and 1 . Draw the graph of f . (at least 3 periods) For which values of x is $f(x) = 1$, $f(x) = 0.5$? What is the range of f ? Explain your reasoning.
- A function f exists on $(-\infty, \infty)$, has the values $f(0) = 3$, $f(2) = 1$, is piecewise linear, and has the slope -1 if $x < 0$; 1 if $x > 2$. Sketch a graph of the function g (enough to show all the major parts!) defined by the following rules: $g_1(x) = f(-x)$; $g_2(x) = -f(-x)$. Be sure to explain your reasoning and comment on the similarities between the two graphs, and why that should happen.
- A function f exists on $(-\infty, \infty)$, has the values $f(0) = 3$, $f(2) = 1$, is piecewise linear, and has the slope -1 if $x < 0$; 1 if $x > 2$. Sketch a graph of the function g (with all the important parts) defined by the following rules: $g_3(x) = f(2x)$; $g_4(x) = 2f(x)$. Be sure to explain your reasoning and comment on the similarities between the two graphs, and why that should happen.
- A function f has the values $f(0) = 3$, $f(2) = 1$, is piecewise linear, and has the slope -1 if $x < 0$; 1 if $x > 2$. Sketch a graph of the function g defined by the following rules: $g_5(x) = f(x + 3)$; $g_6(x) = f(x) + 3$. Be sure to explain your reasoning and comment on the similarities between the two graphs, and why that should happen.
- True or false, every line has a vertical intercept. True or false, every line has a horizontal intercept. Explain why each one is true or false. If it is false, what restrictions can be placed to make it true?
- True or false, every exponential function has a vertical intercept. True or false, every exponential function has a horizontal intercept. Explain why each one is true or false. If it is false, what restrictions can be placed to make it true?
- There are three poles placed in a line 10 meters apart called E, B, and Y. Rob walks from Y to B, stands there for a short time, sprints to E, stands there for a longer time than he stood before, then jogs to E. If his three different speeds are constant, draw two graphs that match this description, one of distance vs. time, the other velocity vs. time. Explain why each part of the graph is the way it is. (labels, slopes, holes, negative parts, etc.)

10. Draw a graph of $f_1(x)$ divided by $f_2(x)$ and then $f_2(x)$ divided by $f_1(x)$. Also draw $f_1(x) + f_2(x)$, $f_2(x) - f_1(x)$, $f_1(x) - f_2(x)$.



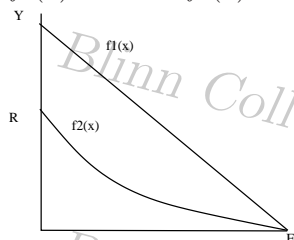
Make sure to explain your work.

11. Draw a graph of $f_1(x)$ divided by $f_2(x)$ and then $f_2(x)$ divided by $f_1(x)$. Also draw $f_1(x) + f_2(x)$, $f_2(x) - f_1(x)$, $f_1(x) - f_2(x)$.



Make sure to explain your work.

12. Draw a graph of $f_1(x)$ divided by $f_2(x)$ and then $f_2(x)$ divided by $f_1(x)$. Also draw $f_1(x) + f_2(x)$, $f_2(x) - f_1(x)$, $f_1(x) - f_2(x)$.



Make sure to explain your work.