

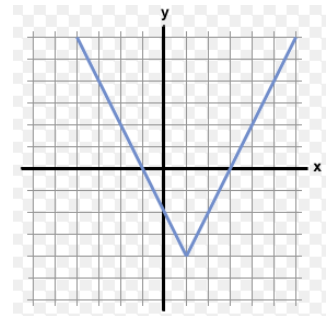
Weekly Warm Up: Unit 3 Review

Monday:

1. Rewrite as an exponential and solve: $\log_3 200 = x$
2. Noah and Marta deposit \$600.00 into a savings account which earns 7% interest compounded quarterly. They want to use the money in the account to go on a trip in 2 years. How much will they be able to spend?
3. An amount of \$3,000.00 is deposited in a bank paying an annual interest rate of 3 %, compounded continuously. Find the balance after 4 years.
4. The frequency of a vibrating guitar string varies inversely as its length. Suppose a guitar string 0.65 meters long vibrates 4.3 times per second. What frequency would a string 0.5 meters long have?
5. In building a brick wall, the amount of time it takes to complete the wall varies **directly** with the number of bricks in the wall and varies **inversely** with the number of bricklayers that are working together. A wall containing 1200 bricks, using 3 bricklayers, takes 18 hours to build. How long would it take to build a wall of 4500 bricks if 5 bricklayers worked on it?
6. Solve: $9^{-3x} \cdot 9^x = 27$

Tuesday:

1. How was the parent function transformed to achieve the graph to the right? Can you write an equation to represent this?



2.

The time, t , in hours, that it takes x people to plant n trees varies directly with the number of trees, and inversely with the number of people. Suppose 6 people can plant 12 trees in 3 hours. How many people are needed to plant 28 trees in 5 hours and 15 minutes?

a. 6 b. 7 c. 8 d. 9
3.

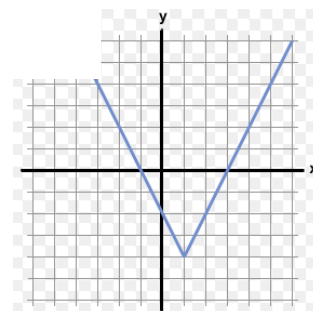
The function $f(x) = \frac{85}{x}$ models the volume of a gas in a balloon under x units of pressure at a constant temperature. Which **best** describes the domain of $f(x)$?

A $0 < x \leq 85$
B $0 \leq x \leq 85$
C $x > 0$
D $x \geq 0$
4. Marisa invests \$300 at a bank that offers 5% compounded annually. How many years will it take for the initial investment to double?
5. Solve for x : $3^{2x+1} = 15$

Wednesday:

- The graph of $f(x) = x^2$ will be translated 5 units up and 2 units to the right. Which function describes the graph produced by the translation?
A $g(x) = x^2 - 4x + 9$
B $g(x) = x^2 + 4x - 1$
C $g(x) = x^2 - 10x + 27$
D $g(x) = x^2 + 10x + 23$

Use the graph to the right to answer questions #2 & 3



- What is the domain and range?
- Write the new equation for the function if I moved it up 3, left 2 and compressed it by $\frac{1}{2}$.
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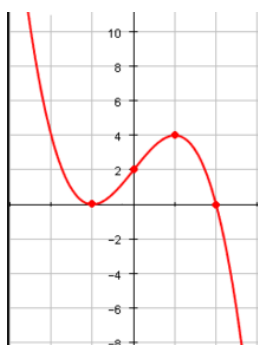
An investment has a balance of \$2,000 and earns 3.2% interest each year. If \$150 is added at the end of each year by the account holder and no money is withdrawn from the investment, which represents a function that can be used to calculate the investment balance for successive years?

- $B_n = 0.032B_{n-1} + 2,000, B_0 = 150$
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- Using the function $f(x) = (x - 4)^2 + 2$, how are the intervals increasing and decreasing?

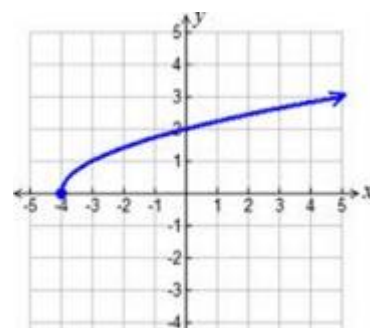
Thursday:

- Write the equation for the graph to the right (hint: what is the parent function equation and transformation?)
Then give the Domain and Range



Use the graph to the left to answer questions #2 & 3

- For which values is it increasing and decreasing?
- Describe the end behavior.



- The volume, V , of a certain gas varies inversely with the amount of pressure, P , placed on it. The volume of this gas is 175 cm^3 when 3.2 kg/cm^2 of pressure is placed on it. What amount of pressure must be placed on 400 cm^3 of this gas?
A 1.31 kg/cm^2
B 1.40 kg/cm^2
C 2.86 kg/cm^2
D 7.31 kg/cm^2

- Is the following growth or decay? What is the rate? $y = 300(1.08)^x$

Friday:

- Using the parent function: $y = \sqrt{x}$, write the equation of the transformed function if the graph is translated up 3 units, to the left 4 units and stretched by 2.
- Which function is even?
 - $f(x) = (x + 2)(x - 2)$
 - $f(x) = x(x + 2)$
 - $f(x) = (x + 1)(x - 2)$
 - $f(x) = (x - 1)(x - 1)$
- Is the function $f(x) = (x - 4)^2 - 6$ an even, odd function or neither?
- Given the function $f(x) = (x + 4)^3 + 7$ and $g(x) = 2(x)^3 + 3$, describe the transformation from $f(x)$ to $g(x)$ that occurred.
- The value, V , of a car can be modeled by the function $V(t) = 13,000(0.82)^t$, where t is the number of years since the car was purchased. To the nearest tenth of a percent, what is the monthly rate of depreciation?
 - 1.5%
 - 1.6%
 - 9.2%
 - 18.0%

Monday:

Tuesday: TEST DAY! Turn in Portfolio