

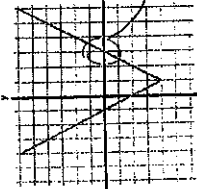
Weekly Warm Up: Unit 3 Review

Monday:

1. Rewrite as an exponential and solve: $\log_3 200 = x$ $3^x = 200$ $x = 4.82$
2. Noah and Marla 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? 689.38
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. $3,382.49$
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? 5.0
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? 40.5
6. Solve: $9^{-3x} \cdot 9^x = 27$ $x = 3/4$

Tuesday:

1. How was the parent function transformed to achieve the graph to the right? Can you write an equation to represent this?
Down 4, right 2, stretched 2
 $f(x) = 2|x-1| - 4$



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 $f(x) = 85$ 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 $x \geq 0$

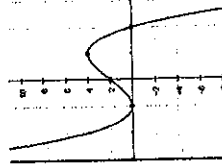
4. Marisa invests \$300 at a bank that offers 5% compounded annually. How many years will it take for the initial investment to double? 14.2 years

5. Solve for x : $3^{2x+1} = 15$
 $\log_3 15 = 2x+1$
 $x = 1.732$

Thursday

Thursday:

1. Write the equation for the graph to the right (hint: what is the parent function equation and transformation?)
 Then give the Domain and Range
 $f(x) = 4(x-0)^2$



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

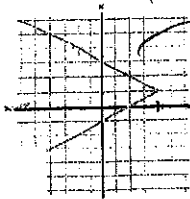
2. For which values is it increasing and decreasing?
 inc: $-1 \leq x \leq 1$
 dec: $x < -1$ and $x > 1$

3. Describe the end behavior.
 $x \rightarrow -\infty, y \rightarrow \infty$
 $x \rightarrow \infty, y \rightarrow \infty$

4. 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

5. Is the following growth or decay? What is the rate? $y = 300(1.08)^x$
 Growth 8%
 6.
 7.

1. 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 $g(x) = x^2 - 5x + 9$
 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

2. What is the domain and range? D: $(-\infty, \infty)$ R: $[-4, \infty)$

3. Write the new equation for the function if I moved it up 3, left 2 and compressed it by %.
 $f(x) = |x+1| - 1$

4. 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?
 A $B_n = 0.032B_{n-1} + 2,000, B_0 = 150$
 B $B_n = 0.032B_{n-1} + 150, B_0 = 2,000$
 C $B_n = 1.032B_{n-1} + 2,000, B_0 = 150$
 D $B_n = 1.032B_{n-1} + 150, B_0 = 2,000$

5. Using the function $f(x) = (x-4)^2 + 2$, how are the intervals increasing and decreasing?
 $(4, \infty)$ $(-\infty, 4)$

$f(x) = 2|x-1| - 4$

WITHOUT THE GRAPH
 3 IT GIVES THE GRAPH
 5 INCREASED BY 3
 TIMES

Answer

Friday:

1. 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.

2. Which function is even?

$$2\sqrt{x+4} + 3$$

A $f(x) = (x + 2)(x - 2)$

B $f(x) = x(x + 2)$

C $f(x) = (x + 1)(x - 2)$

D $f(x) = (x - 1)(x - 1)$

3. Is the function $f(x) = (x - 4)^2 - 6$ an even, odd function or neither?

$$(x-4)(x-4) - 6 = x^2 - 8x + 10$$

4. 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.

stretched 2, right 4, down 4

5.

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?

A 1.5%

B 1.6%

C 9.2%

D 18.0%

$$13,000(0.82)^{1/12}$$

$$= 12,786.78$$

$$\frac{12,786.78 - 13,000}{12,786.78} = -0.0167$$

Monday:

Tuesday: TEST DAY! Turn in Portfolio