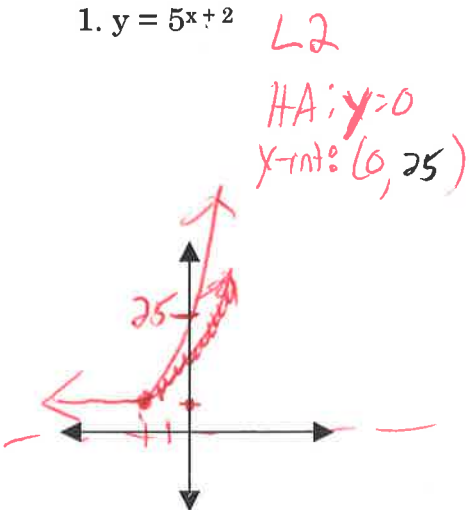


Pre-Calculus/Trig3  
3.1 Worksheet (Quiz Practice)

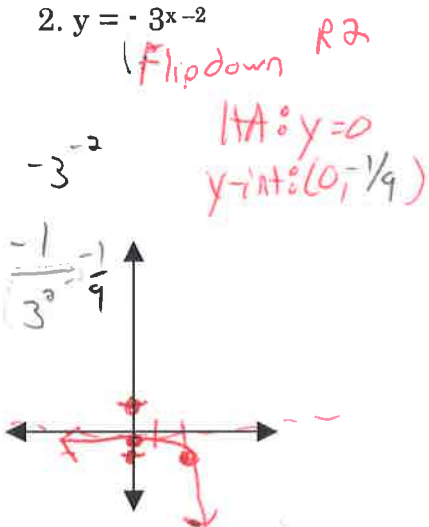
Name Key  
Block \_\_\_\_\_ Date \_\_\_\_\_

Identify the changes to the parent graph then find the HA, y-int., and increasing/decreasing.

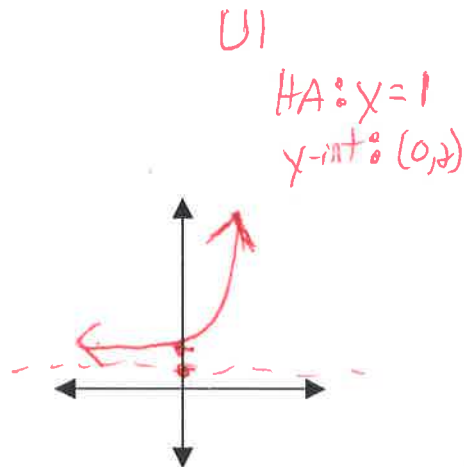
1.  $y = 5^{x+2}$



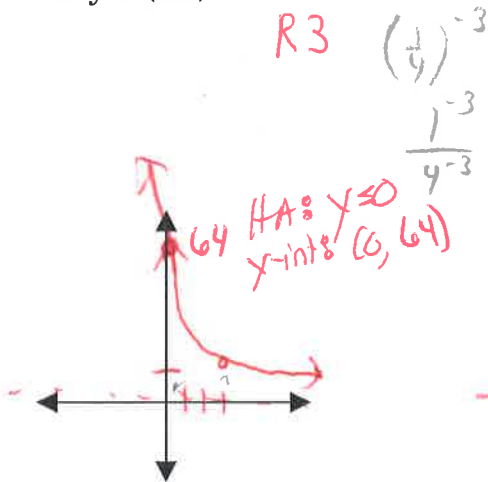
2.  $y = -3^{x-2}$



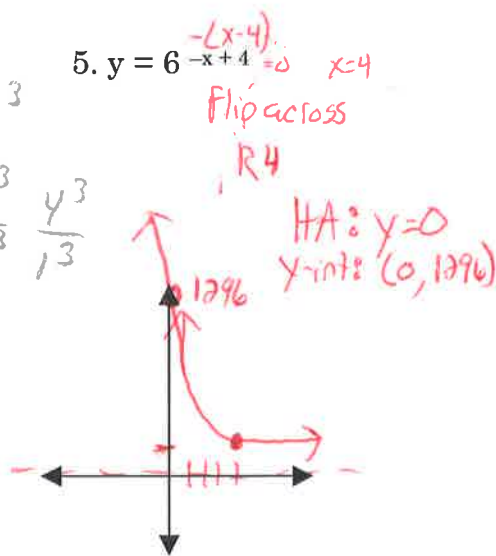
3.  $y = 2^{x+1}$



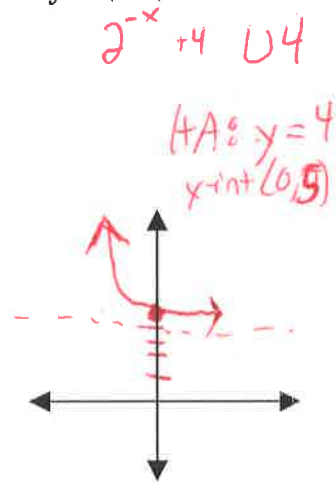
4.  $y = (1/4)^{x-3}$



5.  $y = 6^{-x+4}$



6.  $y = (1/2)^{x+4}$



Solve the following problems for x.

7.  $4^x = 2^{3x-4}$

$2^{2x} = 2^{3x-4}$   
 $2x = 3x-4$   
 $-x = -4$   
 $x = 4$

8.  $3^{x-2} = \frac{1}{243}$

$3^{x-2} = 3^{-5}$   
 $x-2 = -5$   
 $x = -3$

9.  $e^{2x-4} = e^8$

$2x-4 = 8$   
 $2x = 12$   
 $x = 6$

Show all work and answer the questions for each of the following.

10. A bank offers an APR of 8.5% and compounds interest semi-annually for savings accounts. If you were to deposit \$2250, what is the value of the account in 5 years?

$$A = 2250 \left(1 + \frac{0.085}{2}\right)^{2.5}$$

$$A = \$3411.48$$

11. Determine how much money will be in a bank account in 10 years if you deposit \$2000 and it is compounded continuously.

- a) How much is the rate was 3%?

$$A = 2000 e^{-0.03 \cdot 10} = \boxed{A = \$2699.72}$$

- b) How much is the rate was 3.5%?

$$A = 2000 e^{-0.035 \cdot 10} = \boxed{A = \$2838.14}$$

12. Determine the amount of money in a money market account after 7 years providing an annual rate of 5% compounded daily if Marcus invested \$2000 and left it in the account for 7 years.

- a) How much money is in his account now?  
b) How much interest will he have earned?

$$A = 2000 \left(1 + \frac{0.05}{365}\right)^{365 \cdot 7}$$

$$A = \$2838.07$$

$$\text{Int: } \$838.07$$

13. Let  $Q$  represent the *mass of iridium* whose half-life is 2300 years. The quantity of iridium present after  $t$  years is given by:

$$Q = 12 \left(\frac{3}{5}\right)^{\frac{t}{2300}}$$

- a. Determine the initial quantity.  
b. Determine the quantity present after 1000 years.

$$Q = 12 \left(\frac{3}{5}\right)^{0/2300} = \boxed{12}$$

$$Q = 12 \left(\frac{3}{5}\right)^{\frac{1000}{2300}} = \boxed{9.61}$$