

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Solve the following exponential functions [be sure to check your answers!]

1.  $e^x = 45$

$$14 = x$$

$$x = 3.807$$

2.  $5^x - 21 = 14$

$$8 = x$$

$$x = 2.209$$

3.  $81^{x+1} = 3^{5x+6}$

$$p = x$$

$$e = x$$

$$x = -2$$

4.  $3e^{2x} - 4 = 44$

$$5/5 = x$$

$$x = 1.386$$

5.  $3(4^{x-4}) - 8 = 106$

$$2 = x$$

$$8 = x$$

$$x = 6.624$$

6.  $\left(\frac{1}{27}\right)^{x+1} = 3^{6x+6}$

$$14 = x$$

$$x = -1$$

7.  $e^{2x} - 7e^x + 12 = 0$

$$7 = x$$

$$x = 1.386$$

$$x = 1.099$$

8.  $2(3)^{2x} - 5 = 117$

$$14 = x$$

$$x = 1.871$$

9.  $-4e^x + 21 = -39$

$$e = x$$

$$x = 2.708$$

10.  $4^{3x+9} = \left(\frac{1}{64}\right)^x$

$$14 = x$$

$$x = -3/2$$

11.  $\log_2(4x) = 5$

$$X = 8$$

$$\text{POS. } 5 = X$$

12.  $\log_6(5x + 11) + 5 = 8$

$$X = 41$$

$$\text{POS. } 8 = X$$

13.  $\log_5(3x - 7) = \log_5(7x - 21)$

$$X = 7/2$$

$$\text{POS. } 1 = X$$

14.  $\log_3(x) + \log_3(x - 6) = 3$

$$X = 9$$
  
 ~~$X = -3$~~

$$\text{POS. } = X$$

15.  $\log_4(192) - \log_4(3x) = 2$

$$X = 4$$

$$1 = X$$

16.  $\log_3(x^2 + 3x) = \log_3(x + 15)$

$$X = -5$$
  
 $X = 3$

$$\text{POS. } 2 = X$$

17.  $\log_2(4x) - \log_2(x - 2) = 3$

$$X = 4$$

$$\text{POS. } 1 = X$$

18.  $\log_4(x - 15) - \log_4(x) = 2$

 ~~$X = 1$~~   
**No Solution**

$$\text{POS. } 1 = X$$
  
$$\text{POS. } 1 = X$$

19.  $\log_2(2x) + \log_2(x - 2) = 4$

$$X = 4$$
  
 ~~$X = -2$~~

$$\text{POS. } = X$$

20.  $\log_3(x) + \log_3(x - 1) = \log_3(3x + 12)$

$$X = 6$$
  
 ~~$X = -2$~~

$$\text{POS. } 5 = X$$