For #1-2, solve each equation and check for extraneous solutions.

1. 
$$\log_x 81 = 4$$

2. 
$$\frac{4}{x+4} - \frac{1}{x-2} = \frac{12}{x^2 + 2x - 8}$$

$$(x+1)(x-2)\left(\frac{4}{(x+4)}-\frac{1}{(x-2)}\right)=\frac{12}{(x+4)(x-2)}(x+4)(x-2)$$

AX=3 is extrangours

3. The equation  $\frac{2x}{x+2} - 4 = \frac{6}{x}$  has exactly 2 solutions. What is the sum of the solutions for this equation?

ation? 
$$LCD = \times (\times + \Rightarrow)$$

$$\times(x+a)\left(\frac{2x}{(x+a)}-4\right)=\left(\frac{6}{2}\right)\cdot \times(x+a)\left(0=a(x^2+7x+6)\right)$$

$$\times \cdot 2 \times - 4 \cdot x(x+2) = 6(x+2)$$
  
 $2 \times^2 - 4 \times (x+2) = 6 \times + 12$   
 $2 \times^2 - 4 \times^2 - 8 \times = 6 \times + 12$   
 $-2 \times^2 - 8 \times = 6 \times + 12$ 

For #4-5, simplify each expression.

4. 
$$\frac{3x}{x-5} - \frac{2}{x^2-25}$$
 (×+5)

5. 
$$\frac{6}{x+4}$$
 - 3

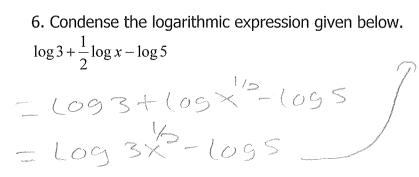
$$= (X+5) \cdot \frac{3}{(X+5)} \times \frac{9}{(X+5)(X-5)}$$

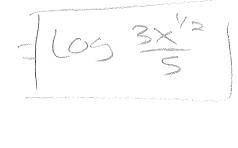
$$=\frac{6}{(x+4)} = \frac{3}{1} \cdot (x+4)$$

$$\frac{6}{3}(x+y)$$

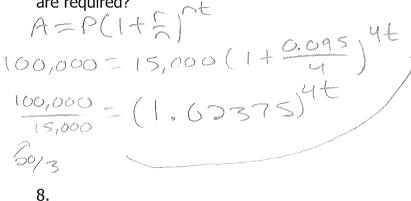
$$= 3x^{2}+15x^{2}$$
 \  $\times \neq -5, 5$  (x+5)(x-5)

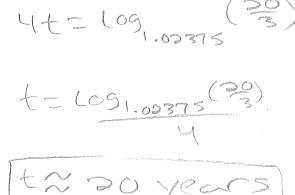
$$\frac{3\times 6}{3\times 4} = \frac{3\times 42}{\times 44} \times 12$$





7. You make a one-time deposit of \$15,000 into a mutual fund investment. Your financial advisor informs you that this mutual fund has attained a 9.5% average annual return. Compounded Suppose you want to get out \$100,000 from this investment. How many years of investing are required?





Newton's Law of Cooling ( $T=S+(T_0-S)e^{-kt}$ ) states that the difference in the temperature of a warm body (or drink) and its surroundings changes exponentially.

T-Current Temperature S-Surrounding Temperature  $T_0$ -Initial Temperature k-Constant t-Time (hrs.)

Tonight is fajita night! The freezer in your home is set to  $0^{\circ}F$ . Last night your Mom took the chicken out of the freezer and put it in the refrigerator to defrost it. The refrigerator is set at  $35^{\circ}F$ . When your Mom goes to start making dinner at 4:30 pm she finds that the temperature of the chicken is now  $23.8^{\circ}F$ . The cooling constant "k" is 0.0565.



Determine the total amount of time that the chicken was in the fridge.

