

Log Word Problem Sheet

Increase
 $y = a(1+r)^{\frac{t}{k}}$

Half Life et
 $y = a\left(\frac{1}{2}\right)^{\frac{t}{k}}$

Decrease
 $y = a(1-r)^{\frac{t}{k}}$

1. $y = 850(1.18)^t$
 $7310 = 850(1.18)^t$

$$\frac{7310}{850} = \frac{850}{850}(1.18)^t$$

$$8.6 = 1.18^t$$

$$13 \text{ yrs} = t$$

2. $5 = 42\left(\frac{1}{2}\right)^{\frac{t}{120}}$

$$0.119 = \frac{1}{2}^{\frac{t}{120}}$$

$$\frac{\log 0.119}{\log \frac{1}{2}} = \frac{t}{120}$$

$$3.07 = \frac{t}{120} \quad \text{cross multiply}$$

$$t = 368 \text{ yrs}$$

3. 25 yrs

4. \$7766

5. ≈ 345 months
or 29 yrs

6. ≈ 215 times
or 53.8 yrs

7. ≈ 77 times
or 38.7 yrs

8. 14 hrs