

*AAT

Chapter 5: Exponent & Logarithm Applications (IC)

Name: Key

Date: _____ Period: _____

1. Anthony bought a government savings bond for \$1,600. He was told that when the bond can be cashed in 8 years that he would get \$2,688.04. If the interest on the bond is compounded annually, what is the interest rate on the bond?

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

Compound Interest Formula

$$2688.04 = 1600\left(1 + \frac{r}{1}\right)^{1 \cdot 8}$$
$$\sqrt[8]{1.680025} = \sqrt[8]{(1+r)^8}$$

$$1.067 = 1 + r$$

$$.067 = r$$

$$r = 6.7\%$$

2. The Party Bank offers a three year CD that pays 4.13% interest compounded continuously. Al deposited \$4,180. How much will Al's account be worth in three years.

$$A = Pe^{rt}$$

Pe^{rt}

$$= 4180e^{.0413(3)}$$

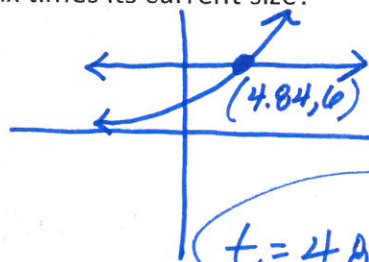
$$= \$4731.35$$

3. The local government projects that the town will grow at a constant rate of thirty-seven percent per year. At this rate, how many years will it take the town's population to be six times its current size?

$$q = q_0 e^{rt}$$

$$600 = 100 e^{.37t}$$

6x (Choose any values)



$$t = 4.84 \text{ yrs.}$$

4. Bill has a government bond that will be worth \$14,242.30 in ten years. The bond has an interest rate of 8% that is compounded semiannually. What is the present value of the bond?

$$14,242.30 = P\left(1 + \frac{.08}{2}\right)^{2(10)}$$

$$P = \$6500$$