

Name \_\_\_\_\_

Date \_\_\_\_\_

## Logarithm Word Problems - Guided Lesson Explanation

### Explanation #1

**Step 1: Define the parameters.**

**As we know: P = principal amount = 50,000**

**R = annual rate of interest = 14%**

**n = number of times per year, interest is compounded = 2**

**t = time in years = 5**

**A = amount of money accumulated after t years, including interest = unknown**

**Step 2: Define the formula.**

**Compound amount (A) =  $P * (1 + R/n)^{n * t}$**

**Step 3: Plug-in the values.**

$$\begin{aligned}\text{Compound amount (A)} &= 50,000 * (1 + 14/200)^{2 * 5} \\ &= \$98357.57\end{aligned}$$

**Answer is: \$98,357.57**

### Explanation #2

**Step 1: Define the parameters.**

**As we know: P = principal amount = unknown**

**R = annual rate of interest = 6%**

**n = number of times per year, interest is compounded = 2**

**t = time in years = 6**

**A = amount of money accumulated after t years, including interest = \$75250**

**Step 2: Define the formula.**

**Compound amount (A) =  $P * (1 + R/n)^{n * t}$**

**Step 3: Plug-in the values.**

$$75,250 = P * (1 + 6/200)^{2 * 6}$$



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$$P = \$52778.84$$

$$\text{Answer is: } P = \$52,778.84$$

### **Explanation #3**

**Step 1: Define the parameters.**

**As we know: P = principal amount = \$55**

**R = annual rate of interest = unknown**

**n = number of years the amount is deposited (\$55) = 8 years**

**A = amount of money accumulated after n years, including interest. = \$125.25**

**Step 2: Define the formula.**

$$\text{Compound amount (A)} = P * (1+R)^n$$

**Step 3: Plug-in the values.**

$$125.25 = 55 * (1+R)^8$$

$$R = 0.1083 \text{ or } 10.83 \%$$

$$\text{Answer is: } R = 10.83 \%$$

