



6-2 Reteach to Build Understanding

Exponential Models

1. It is important to know what the variables in interest-rate formulas represent.

Compound Interest: $A = P\left(1 + \frac{r}{n}\right)^{nt}$ Continuously Compounded Interest: $A = Pe^{rt}$

Write the variable in the blank next to its description.

_____ the principal, or the initial amount of money that is invested

_____ the annual rate of interest, or interest rate

_____ the accumulated value of the account, or the balance

_____ the number of compounding periods each year

_____ the time given in years

_____ approximately 2.718282... is a constant called the natural base

2. Abby invested \$4,500 in a savings account where she earned 2.5% interest compounded quarterly. She miscalculated what the accumulated value would be in her account after 5 years. Find and correct her error.

$$\begin{aligned} A(5) &= 4,500\left(1 + \frac{0.025}{4}\right)^5 \\ &= 4,500(1.00625)^5 \\ &\approx \$4,642 \end{aligned}$$

3. Danielle has two interest rates to choose from to invest her inheritance of \$5,000. BANK A: 2.75% compounded monthly; BANK B: 3.25% compounded semi-annually. Complete Danielle's work to find the better return after 10 years.

BANK A

$$\begin{aligned} A(t) &= a\left(1 + \frac{r}{n}\right)^{nt} \\ A(10) &= 5,000\left(1 + \frac{0.0275}{12}\right)^{12 \cdot 10} \\ &\approx \$6,581 \end{aligned}$$

BANK B

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