
For the next problems, show all work to receive full credit. No Work = No Credit.

1. Find the future value if \$8000 is invested for 10 years at 9% compounded continuously?

$$\begin{aligned}A &= Pe^{rt} \\ &= 8000e^{.09 \cdot 10} \\ &\approx \$19,676.82\end{aligned}$$

2. What lump sum should be deposited in an account that will earn 9% compounded quarterly to grow to \$1,000,000 in 25 years?

$$\begin{aligned}A &= P(1+i)^n \\ 1,000,000 &= P \left(1 + \frac{.09}{4}\right)^{4 \cdot 25} \\ 1,000,000 &= P(9.2540406298) \\ P &\approx \$108,060.84\end{aligned}$$

3. What interest will be earned if \$8600 is invested for 6 years at 10% compounded semiannually?

$$\begin{aligned}A &= P(1+i)^n \\ A &= 8600 \left(1 + \frac{.10}{2}\right)^{2 \cdot 6} \\ A &\approx \$15,444.36\end{aligned}$$

Therefore the interest earned is:

$$I = A - P = 15,444.36 - 8600 = \$6844.36$$