

Assignment #6

HW # 6 6.2 p 449 # 16, 20, 24, 30, 40, 42, 44

$$16. \quad S = \$300,000, n = (2)(15) = 30,$$

$$\text{and } i = \frac{0.07}{2} = 0.035.$$

$$300,000 = P(1 + 0.035)^{30}$$

$$= P(2.806794)$$

$$P = \frac{300,000}{2.806794} = \$106,883.51$$

$$20. \quad S = Pe^{rt} = 8000e^{(0.085)(4.5)} = \$11,727.56$$

24. Compounded continuously:

$$S = 5000e^{(0.07)(6)} = \$7609.81$$

$$I = 7609.81 - 5000 = \$2609.81$$

Compounded quarterly:

$$S = 5000 \left(1 + \frac{0.07}{4} \right)^{4(6)} = \$7582.21$$

$$I = 7582.21 - 5000 = \$2582.21$$

$$\text{Difference} = 2609.81 - 2582.21 = \$27.60$$

30. The highest yield occurs with the most compounding periods.

Rank: 6% compounded continuously,

6% compounded monthly,

6% compounded semi-annually.

$$40. \quad 14,071 = 10,000(1+r)^7$$

$$1.4071 = (1+r)^7$$

$$\ln(1.4071) = 7 \ln(1+r)$$

$$0.3415 = 7 \ln(1+r)$$

$$0.0488 = \ln(1+r)$$

$$e^{0.0488} = e^{\ln(1+r)}$$

$$1.0500 = 1+r$$

$$r = 0.05 = 5\%$$

$$42. \quad S = Pe^{rt} = 1500e^{(0.09)(6)} = \$2574.01$$

$$44. \quad \text{a. } S = 7(1+0.06)^{135} = \$18.255 \text{ billion}$$

$$\text{b. } S = 7(1+0.07)^{135} = \$64.850 \text{ billion}$$

c. No; resources are greater.