

Homework Answers
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Precalc

31a. Compounded once:

$$I = 1000[(1 + 0.05)^1 - 1]$$

$$= 50; \$50$$

Compounded twice:

$$I = 1000\left[\left(1 + \frac{0.05}{2}\right)^2 - 1\right]$$

$$\approx 50.625; \$50.63$$

Compounded four times:

$$I = 1000\left[\left(1 + \frac{0.05}{4}\right)^4 - 1\right]$$

$$\approx 50.9453; \$50.94$$

Compounded twelve times:

$$I = 1000\left[\left(1 + \frac{0.05}{12}\right)^{12} - 1\right]$$

$$\approx 51.1619; \$51.16$$

Compounded 365 times:

$$I = 1000\left[\left(1 + \frac{0.05}{365}\right)^{365} - 1\right]$$

$$\approx 51.2675; \$51.26$$

31b. Let x represent the investment.

Statement savings: $I = x[(1 + 0.051)^1 - 1]$

$$= 0.051x$$

The return is 5.1%

Money Market Savings: $I = x\left[\left(1 + \frac{0.0505}{12}\right)^{12} - 1\right]$

$$= 0.517x$$

The return is 5.17%

Super Saver: $I = x\left[\left(1 + \frac{0.05}{365}\right)^{365} - 1\right]$

$$= 0.513x$$

The return is 5.13%

Money Market Savings

31c. $(1 + 0.05) = \left(1 + \frac{x}{365}\right)^{365}$

$$(1.05)^{\frac{1}{365}} = 1 + \frac{x}{365}$$

$$365[(1.05)^{\frac{1}{365}} - 1] = x$$

$$0.04879 = x; 4.88\%$$