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#24 $1000 + 1000(1.03) + 1000(1.03)^2 + 1000(1.03)^3 + \dots + 1000(1.03)^{19}$

$$\sum_{k=1}^{20} 1000(1.03)^{k-1} = 1000\left(\frac{1-(1.03)^{20}}{1-1.03}\right)$$

$$= 1000\left(\frac{-0.806111}{-0.03}\right) = 26,870.37$$

#26 a doubling the deposits

$$\sum_{k=1}^{20} 2000(1.03)^{k-1} = 2\sum_{k=1}^{20} 1000(1.03)^{k-1} = 2(26,870.37)$$

exactly doubles!

b doubling the interest.

$$\sum_{k=1}^{20} 1000(1.06)^{k-1} = 1000\left(\frac{1-(1.06)^{20}}{1-1.06}\right)$$

$$= 1000\left(\frac{-2.20714}{-0.06}\right) = 36,785.59$$

less than doubles.

c $$\sum_{k=1}^{40} 1000(1.03)^{k-1} = 1000\left(\frac{1-1.03^{40}}{1-1.03}\right)$$

$$= 1000\left(\frac{-2.26204}{-0.03}\right)$$

$$= 75,401.25$$

more than doubles