Solution:

(1)

(a) $Amount = \$\frac{30{,}000}{(1.1)^4} = \$2.049.04$

(b) $Amount = \frac{\$\ 30{,}000}{(1.2)^4} = \$1{,}446.76$

(2)

(a) $Amount = \$\frac{30{,}000}{1.05^8} = \$2{,}030.52$

(b) $Amount = \$\frac{30{,}000}{1.1^8} = \$1{,}399.52$

(3)

(a)

$$Amount\ to\ be\ lended = \frac{8000}{1+0.1} + \frac{8000}{(1+0.1)^2} + \frac{8000}{(1+0.1)^3} + \frac{8000}{(1+0.1)^4}$$
$$= \frac{8000}{0.1}\left(1 - \frac{1}{(1+0.1)^4}\right) = \$25{,}368.92$$

(b)

$$Amount\ to\ be\ lended = \frac{8000}{1+0.2} + \frac{8000}{(1+0.2)^2} + \frac{8000}{(1+0.2)^3} + \frac{8000}{(1+0.2)^4}$$
$$= \frac{8000}{0.2}\left(1 - \frac{1}{(1+0.2)^4}\right) = \$20{,}709.87$$