Bellwork Alg 2B Monday, October 23, 2017

Use these formulas: Simple Interest: $I = prt$ Compounding Interest: $A = P(1 + \frac{r}{n})^{nt}$

$p = principal$ $r =$ interest rate $t = \#\ years$ $n = \#$ times compound interest in a year

You invest $25,000 in an account that pays 6% annual interest. Find the amount of money in the account after 25 years if interest is calculated the following ways:

1. Simple interest.

2. Interest compounded annually.

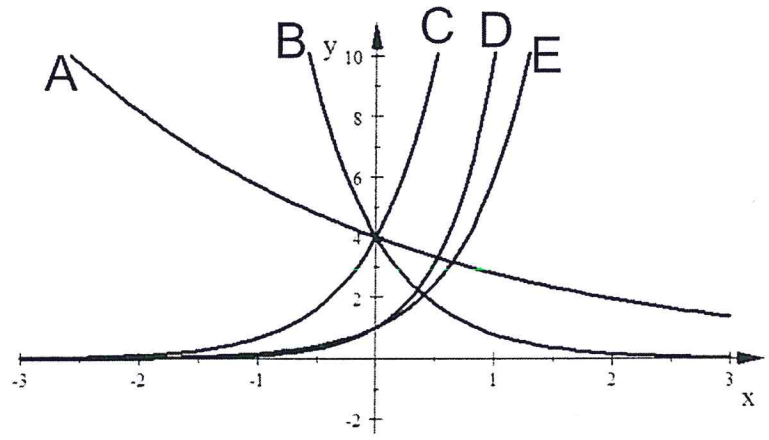
3. Interest compounded quarterly.

4. Interest compounded monthly.

5. Interest compounded daily.

6. Match each graph to its equation.

_____ $y = 4(6)^x$ _____ $y = 4(.2)^2$ _____ $y = 6^x$ _____ $y = 4(.7)^x$ _____ $y = 10^x$



Answers

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Use these formulas: Simple Interest: $I = prt$ Compounding Interest: $A = P(1 + \frac{r}{n})^{nt}$

p = principal r = interest rate t = # years n = # times compound interest in a year

You invest $25,000 in an account that pays 6% annual interest. Find the amount of money in the account after 25 years if interest is calculated the following ways:

1. Simple interest.

$I = (25,000)(.06)(25)$

$= 37,500$

TOTAL

$25,000 + 37,500$

$62,500

2. Interest compounded annually.

$107,296.77

$P = 25,000$
$r = .06$
$n = 1$
$t = 25$

$A = 25,000\left(1 + \frac{.06}{1}\right)^{1 \cdot 25} = 25,000(1.06)$

3. Interest compounded quarterly.

$P = 25,000$
$r = .06$
$n = 4$
$t = 25$

$A = 25,000\left(1 + \frac{.06}{4}\right)^{4 \cdot 25}$

$= \$110,801.14$

4. Interest compounded monthly.

$P = 25,000$
$r = .06$
$n = 12$
$t = 25$

$A = 25,000\left(1 + \frac{.06}{12}\right)^{12 \cdot 25}$

$= \$111,624.25$

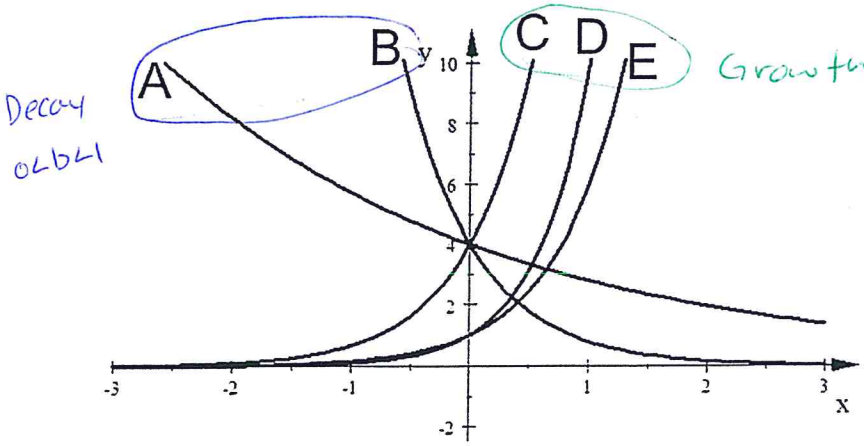
5. Interest compounded daily.

$P = 25,000$
$r = .06$
$n = 365$
$t = 25$

$A = 2,5000\left(1 + \frac{.06}{365}\right)^{365 \cdot 25} = \$112,028.42$

6. Match each graph to its equation.

C $y = 4(6)^x$ B $y = 4(.2)^2$ E $y = 6^x$ A $y = 4(.7)^x$ D $y = 10^x$



Decay 0<b<1

Growth b > 1