Warm Up: Pre-Calc 9/24

The parameters of the function A represent particular features of the situation. The \$50,000 value represents the amount of money that was deposited to open Margaret's savings account. This value is known as the initial amount, or the ***principal***, P. For a 5% interest rate, the value $1 + 0.05$, or 1.05, represents the amount by which the current balance is multiplied to get the following year's balance. For any ***interest rate*** r, $1 + r$ is the annual ***growth factor***.

Write an exponential function A(t) for Margret's bank account.

Feb 27-7:39 AM

W.A.L.T.:

Write and solve exponential functions.

W.A.S.I:

We can use the ideas of growth, decay, principal, interest to solve exponential functions.

Mar 7-9:45 AM

In Class Work:

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Mar 7-1:33 PM

In Class Work: pg. 49 - 50 #8 - 16

8. Using parameters P and r, define a general function $A(t)$, where t is the number of years since the principal was deposited in Margaret's savings account.

Mar 7-1:33 PM

In Class Work: pg. 49 - 50 #8 - 16

9. Write a function for Margaret's account balance at the same annual interest rate of 5%, but with a principal of $30,000.

$$A(t) = 30{,}000(1.05)^t$$

Mar 7-1:33 PM

In Class Work: pg. 49 - 50 #8 - 16

10. Margaret wants to compare how her investment grows over time when the principal changes.

a. Write the equation to find the time it will take to double the $30,000 initial investment.

$$60{,}000 = 30{,}000(1.05)^t$$

Mar 7-1:33 PM

In Class Work: pg. 49 - 50 #8 - 16

b. How long would it take for Margaret to double her investment if she deposited $30,000 instead of $50,000? Explain how you arrived at this conclusion.

$2 = (1.05)^t$

$3x + 7 = 28$

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c. From the results of Items 7c and 10b, and any other principal amounts you choose to investigate, what conclusion can you make regarding the doubling time for any principal amount *P* at an annual interest rate of 5%?

Mar 7-1:33 PM

Check Your Understanding

11. Write a function for Margaret's account balance at the annual interest rate of 4% with a principal of $50,000.

12. How long would it take to double Margaret's initial investment of $50,000 if the annual interest rate were 4%?

13. Explain why $A(t) = P(1.05)^t$ forms a geometric sequence for $t = 1, 2, 3, \ldots$

21-26 P. W.

Sep 24-10:29 AM

Margaret will invest in an account that offers a 5% annual interest rate, compounded annually. However, she may not invest all of the $50,000.

14. Write functions $A(t)$, $B(t)$, and $C(t)$ for the amount of money Margaret would have in her account if she makes initial investments of $10,000, $25,000, and $50,000.

Sep 24-10:29 AM

15. For each function, find the amount of money Margaret would have in her account after 10 years and after 20 years.

Sep 24-10:29 AM

16. Use appropriate tools strategically. Use a graphing calculator. Graph each function for the first 20 years of the investment on one graph.

a. What is the relationship between the y-intercepts of the graphs and the investments?

b. Describe the end behavior of each graph as t increases.

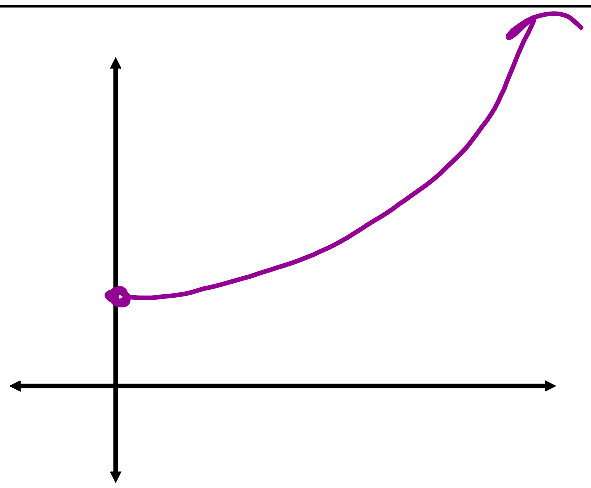
Sep 24-10:29 AM

Today's Activities:

- pg. 49 - 50 #8 - 16

P.W. for tonight:

- pg. 51 #21 - 26



Feb 27-7:23 AM