

Exponential Growth and Decay Bell Work

Solve the problem below involving exponential growth and decay using manual calculation.

A. There are 24 liters of water inside the container. Without a cover the water is reduced by 4% every hour due to evaporation. How much water will be left inside the container after 3 hours?

	Time	Calculation	Amount of Water
	0	-	24
1.	1		
2.	2		
3.	3		

Solve the problem below involving exponential growth and decay using equation table.

B. Ronald is offered a job as a mechanic starting at \$700 per month. If he is guaranteed of 20% increase every 6 months, what will his salary be after 18 months?

	Time	Calculation	Amount of Water
	0	-	700
4.	1 - 6 months		
5.	2 - 12 months		
6.	3 - 18 months		
7.	t		

Name: _____ Period: _____ Date: _____

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Solve the problem below involving exponential growth and decay using equation.

C. Find the compound amount at the end of 6 years on the original investment of \$7000 at 9% interest at the following terms.

8. Compounded Annually

9. Compounded Semi-annually

10. Compounded Quarterly

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ANSWERS Solve the problem below involving exponential growth and decay using manual calculation.

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	Time	Calculation	Amount of Water
	0	-	24
1.	1	$24 - (24(0.04))$	23.04
2.	2	$23.04 - (23.04(0.04))$	22.12
3.	3	$22.12 - (22.12(0.04))$	21.23

Solve the problem below involving exponential growth and decay using equation table.

B. Ronald is offered a job as a mechanic starting at \$700 per month. If he is guaranteed of 20% increase every 6 months, what will his salary be after 18 months?

	Time	Calculation	Amount of Water
	0	-	700
1.	1 - 6 months	$700(1+0.2)^1$	840
2.	2 - 12 months	$700(1+0.2)^2$	1008
3.	3 - 18 months	$700(1+0.2)^3$	1209.6
	t	$700(1+0.2)^t$	Nt

Solve the problem below involving exponential growth and decay using equation.

C. Find the compound amount at the end of 6 years on the original investment of \$7000 at 9% interest at the following terms.

8. Compounded Annually

Solution:

$$N_5 = 7000(1 + 0.09)^6 = 11739.7$$

9. Compounded Semi-annually

Solution:

$$N_5 = 7000 \left(1 + \frac{0.09}{2} \right)^{6(2)} = 11871.17$$

10. Compounded Quarterly

Solution:

$$N_5 = 7000 \left(1 + \frac{0.09}{4} \right)^{6(4)} = 10448.11$$