

6.3 Applications of "e"

Name _____

Use a scientific calculator to evaluate each expression, accurate to two decimal places (x.xx)	
1. e^2	2. $e^{\frac{1}{2}}$
3. e^π	4. $e^{2\pi}$
The population of aphids on a rose plant is given by the following formula: $P = 80e^{0.17t}$, where t is the time elapsed since the prior inspection of the plant. Write your answers rounded to the nearest whole number.	
5. Find the aphid population at 3 weeks following inspection.	6. Find the aphid population at 12 weeks following inspection.
Ten grams of tritium will be used in an experiment as a biochemical tracer. The amount of tritium remaining after t years will be $P = 10e^{-0.06t}$. Write your answers rounded to 2 decimal places (x.xx).	
7. Find the amount of tritium remaining in 5 years.	8. Find the amount of tritium remaining in 20 years.
Answers: 1. 7.39; 3. 23.14; 5. 134; 7. 7.41	

Use the compound interest formula to find the accumulation amount for each of the following scenarios.

$$A = Pe^{rt}$$

9. Principal: \$1,500
Annual rate: 7%
Number of years: 1
Compound: continuously

10. Principal: \$2,100
Annual rate: 6.5%
Number of years: 2
Compound: continuously

11. Principal: \$3,200
Annual rate: 5.8%
Number of years: 3.5
Compound: continuously

12. Principal: \$1,450
Annual rate: 6.7%
Number of years: 2.5
Compound: continuously

Use the compound interest formula to find the amount of money that should be invested for each of the following scenarios to occur.

13. Accumulated amount: \$50,000
Annual rate: 7%
Number of years: 10
Compound: continuously

14. Accumulated amount: \$35,000
Annual rate: 6%
Number of years: 12
Compound: continuously

Answers: **9.** \$1,608.76; **11.** \$3,920.23; **13.** \$24,829.27