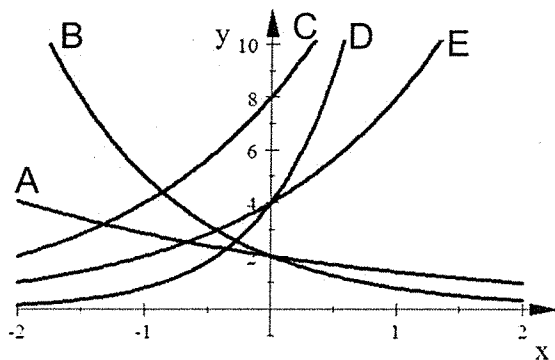


NO CALCULATOR ON THIS PART

1. Match each graph with its correct equation.

a) $y = 8(2)^x$ b) $y = 2(0.4)^x$ c) $y = 4(2)^x$ d) $y = 2(0.7)^x$ e) $y = 4(5)^x$



2. Does each exponential equation represent Growth or Decay?

a) $y = 450(\frac{13}{12})^x$ b) $y = 18(1.0003)^x$ c) $y = 9580(0.998)^x$

3. Rewrite each exponential equation as a logarithm.

a) $7^x = 343$ b) $10^5 = x$ c) $x^7 = 1200$ d) $e^x = 4.5$

4. Rewrite each logarithmic equation as an exponential.

a) $\log_3 x = 4$ b) $\log_x 25 = 2$ c) $\log 400 = x$ d) $\ln x = 10$

YOU CAN USE A CALCULATOR ON THIS PART

5. Use each percent change (increase or decrease) to find the base b of an exponential function.

a) 1.85% increase b) 38% decrease c) 0.43% decrease d) 95% increase

6. Give the percent change (state if it's an increase or decrease) that each exponential equation models.

a) $y = 1300(0.95)^x$ b) $y = 2(1.0075)^x$

7. The population of a city was growing 3.8% each year throughout the late 1800's into the 1900's. In 1900 the population was 10,000.

a) Find the population in 1914.

b) Find the population in 1895.

c) In how many years since 1900, to the nearest hundredth, will the population reach 25,000.

8. The value of a house in 2005 was \$129,000. The value of the house has been declining 5.25% each year.

a) Find the value of the house in 2011.

b) Find the value of the house in 2000.

c) In how many years since 2005 will the house be worth \$50,000. Round to the nearest hundredth.

9. You invest \$15,000 in an account that earns 6% annual interest. Find the value of the account after 20 years using the given information.

a) Interest is compounded monthly.

b) Interest is compounded weekly.

c) Interest is compounded continuously.

10. Solve each. Round to the nearest hundredth.

a) $5^x = 43$

b) $10^x = 1501$

c) $2(8)^{x-3} + 7 = 245$

d) $e^x = 11$

e) $\log_6 x = 3$

f) $3^{x+2} - 15 = 32$

g) $2 \cdot e^{4x} + 1 = 99$

h) $9 + \log_x 50 = 12$

11. The half-life of a certain radio active substance is 40 minutes. If there are 500g of this substance at 8:00am find the amount remaining at 2:30pm the same day. Round to the nearest hundredth.

12. The number of cells of a certain bacteria doubles every 30 minutes. If there are 200 cells at 9:00 am find the number of cells at 4:45pm the same day.

13. The population of a city has been increasing exponentially each year since 2005. The population in 2007 was 26,460 and the population in 2008 was 27,783. Write an exponential equation to model this data. $x = \#$ since 2005.

14. Write the equation of an exponential equation that passes through these two points: (2,48) & (5,3072)

Alg 2 Review Sections 6-1 to 6-3 Spring 2020

ANSWERS

1. a) C $y = 8(2)^x$ b) B $y = 2(0.4)^x$ c) E $y = 4(2)^x$ d) A $y = 2(0.7)^x$ e) D $y = 4(5)^x$

2. a) Growth b) Growth c) Decay

3. a) $\log_7 343 = x$ b) $\log x = 5$ c) $\log_x 1200 = 7$ d) $\ln 4.5 = x$

4. a) $3^4 = x$ b) $x^2 = 25$ c) $10^x = 400$ d) $e^{10} = x$

5. a) $b = 1.0185$ b) $b = 0.62$ c) $b = .9957$ d) $b = 1.95$

6. a) 5% decrease b) 0.75% increase

7. $y = 10000(1.038)^x$ a) $10000(1.038)^{14} = 16856$ b) $10000(1.038)^{-5} = 8299$

c) $25000 = 10000(1.038)^x \rightarrow x = 24.57$ yrs

8. $y = 125,000(.9475)^x$ a) $125,000(.9475)^6 = \$90445.16$

b) $125,000(.9475)^{-5} = \$163686.90$ c) $50000 = 125000(.9475)^x \rightarrow x = 16.99$ yrs

9. a) \$49,653.07 b) \$49,767.31 c) \$49,801.75

10. a) $x = 2.34$ b) $x = 3.18$ c) $x = 5.30$ d) $x = 2.40$ e) $x = 216$

f) $x = 1.50$ g) $x = 0.97$ h) $x = 3.68$

11. 0.58g 12. 9,268,190 cells

13. $y = 24,000(1.05)^x$ 14. $y = 3(4)^x$