

Math III Honors Unit 2 Quiz Review – Exponentials

Name _____

1. Rewrite the expression in radical form:

$$7x^{\frac{1}{6}}y^{\frac{5}{6}}$$

2. Rewrite the radical in exponential form:

$$8^5\sqrt{f(gh)^3}$$

3. Simplify each (all exponents should be positive):

a. $\frac{20a^6b^{-3}c^{-3}}{4a^{11}b^{-7}}$

b. $(64b^{-6}c^0)^{\frac{1}{6}}$

4. The population of an animal habitat can be modeled by the function $P(t) = 660(0.855)^t$, where $t = 0$ is the year 2020.

- a. What is the population of dinosaurs in the year 2020?

- b. Is the population increasing or decreasing? By what percent rate?

Circle One: Increasing Decreasing

Percent:

- c. What is the population in the year 2037?

5. Georgio had a collection of 2250 books when he started his library. Every year his collection increases by 15%. Write a function to model $B(t)$, the number of books in his library.

How many books does he have after 9 years?

6. A car purchased for \$75,000 decreases in value at a rate of 4.1% each year. Write a function to model $v(t)$, the value of the car after t years?

What is the value of the car after 4 years?

7. The half-life of Cd-334 is 30 days. How much of a 1000g sample is left after 55 days?

What was the original sample if there are 90g after 45 days?

8. The pineapple production at Dole plantation in Kealahou, Hawaii has been steadily increasing at a 16% rate since 1990. Dole was producing about 220,000 pineapples in the year 1990. Write the equation to model this.

What was the pineapple production in 2005?

9. Tori put \$400 into an account that compounded daily at a rate of 4.9%. How much money will she have in 14 years?

10. Ben checked his account today and it had \$3000 in it. The interest rate was 3.9% compounded monthly and the money was in the account for 6 years. What was his principal (initial amount)?

11. An account with an initial deposit of \$600 compounds continuously at a rate of 4.8% each year. Determine the amount in the account after 40 years.