



Precalculus: Exponential Function

Name _____ Date _____

Calculate the value of quantities with an exponential behavior

- (1) Certain quantity grows at a constant rate of 4% per semester. Its present value is 6,700 units. How much will its value be 6 years from now?

- (2) The amount of area covered by a river grows by 1.8% each year. It was estimated the area covered in 2003 was 77 square kilometers. Estimate the area for the year 2021.

- (3) A bank offers a savings account which gives a yearly interest rate of 5.6%. An investor deposits \$1,000 today. How much will have the investor in the account in 9 years?

- (4) The population of a country grows by 0.3% yearly. If today the population is 4,200,000 people, how many people will the country have 20 years from now?

- (5) A boat purchased for \$20,000 depreciates at a constant rate of 2.5% each year. Determine its value 32 years after purchase.

- (6) The mass of a radioactive substance decays by 2.5% each day. If today we have 54 lb of that substance, how much remains after 13 days?



Answers

Calculate the value of quantities with an exponential behavior

(1) Certain quantity grows at a constant rate of 4% per semester. Its present value is 6,700 units. How much will its value be 6 years from now?

10,726.92 units

(2) The amount of area covered by a river grows by 1.8% each year. It was estimated the area covered in 2003 was 77 square kilometers. Estimate the area for the year 2021.

Area for the year 2021= 106.16 square kilometers

(3) A bank offers a savings account which gives a yearly interest rate of 5.6%. An investor deposits \$1,000 today. How much will have the investor in the account in 9 years?

\$1,632.96

(4) The population of a country grows by 0.3% yearly. If today the population is 4,200,000 people, how many people will the country have 20 years from now?

4,459,313 people

(5) A boat purchased for \$20,000 depreciates at a constant rate of 2.5% each year. Determine its value 32 years after purchase.

Final value: \$8,895.65

(6) The mass of a radioactive substance decays by 2.5% each day. If today we have 54 lb of that substance, how much remains after 13 days?

38.86 lb