Exponential Functions in Banking - Example 2

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^{\$}1000$ to put in the bank earning 4% interest compounded continuously. How much money we will have after 5 years?

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$1000$ to put in the bank earning 4% interest compounded continuously. How much money we will have after 5 years?

In this example, we know the original amount of money.

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$1000$ to put in the bank earning 4% interest compounded continuously. How much money we will have after 5 years?

In this example, we know the original amount of money.

We want to know the amount of money in the end.

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$1000$ to put in the bank earning 4% interest compounded continuously. How much money we will have after 5 years?

In this example, we know the original amount of money.

We want to know the amount of money in the end.

▸ We saw that the amount of money when compounded continuously is given by:

$$P(t) = P_o e^{rt}$$

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$1000$ to put in the bank earning 4% interest comounded continuously. How much money we will have after 5 years.

In this example, we know the original amount of money.

We want to know the amount of money in the end.

▸ We saw that the amount of money when compounded continuously is given by:

$$P(t) = P_o e^{rt}$$

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$1000$ to put in the bank earning 4% interest comounded continuously. How much money we will have after 5 years.

In this example, we know the original amount of money.

We want to know the amount of money in the end.

▸ We saw that the amount of money when compounded continuously is given by:

$$P(t) = P_o e^{rt}$$

This gives us the equation:

$$P(5) = 1000 e^{.04 \cdot 5}$$

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$1000$ to put in the bank earning 4% interest comounded continuously. How much money we will have after 5 years.

In this example, we know the original amount of money.

We want to know the amount of money in the end.

▸ We saw that the amount of money when compounded continuously is given by:

$$P(t) = P_o e^{rt}$$

This gives us the equation:

$$P(5) = 1000e^{.04 \cdot 5} \approx 1221.40$$

Exponential Functions in Banking - Example 2

Example: Suppose that we have $^\$ 1000$ to put in the bank earning 4% interest comounded continuously. How much money we will have after 5 years.

In this example, we know the original amount of money.

We want to know the amount of money in the end.

▸ We saw that the amount of money when compounded continuously is given by:

$$P(t) = P_o e^{rt}$$

This gives us the equation:

$$P(5) = 1000 e^{.04 \cdot 5} \approx 1221.40$$

Conclusion: We will have $^\$ 1221.40$ in 5 years if we put $^\$ 1000$ in the bank today.