

Exponentials Compounded

Warm Up

1. An investment of \$200 is invested at a rate of 1% per year. Find the value of the investment after 5 years.
2. Suppose you wanted to have \$12,000 after 15 years. How much would you need to invest to meet your goal in 15 years?

Compounding Quarterly

Suppose Karen has \$1000 that she invests in an account that pays 3.5% interest compounded quarterly. How much money does Karen have at the end of 5 years?

Compounding Quarterly

Suppose you have \$1 to invest in an account that pays 100% interest compounded quarterly. How much money do you have at the end of 1 year?

Compounding Monthly

Suppose you have \$1 to invest in an account that pays 100% interest compounded monthly. How much money do you have at the end of 1 year?

Compounded Daily

Suppose you have \$1 to invest in an account that pays 100% interest compounded daily. How much money do you have at the end of 1 year?

Compounding Hourly

Suppose you have \$1 to invest in an account that pays 100% interest compounded hourly. How much money do you have at the end of 1 year?

Compounding Minutely

Suppose you have \$1 to invest in an account that pays 100% interest compounded minutely. How much money do you have at the end of 1 year?

Compounded Continuously

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Compounded Continuously

Suppose that in year 0, one cent was invested in an account earning 0.9% interest compounded continuously. How much will it be worth 2015 years later?

Compounded Continuously

If you invest \$2,000 at an annual interest rate of 13% compounded continuously, calculate the final amount you will have in the account after 20 years.

Half Life

Hg-197 is used in kidney scans. It has a half-life of 64.128 hours. Write an exponential decay function for a 12-mg sample.

Find the amount remaining after 72 hours.

Your Turn

Sr-85 is used in bone scans. It has a half-life of 64.9 days. Write an exponential decay function for an 8-mg sample.

Find the amount remaining after 100 days.

Half Life

I-123 is used in thyroid scans. It has a half-life of 13.2 hours. Write the exponential decay function for a 45-mg sample.

Find the amount remaining after 5 hours.

Half Life

The half life of Uranium-235, fuel used in nuclear power plants, is 704 million years. If 10 bundles of Uranium fuel, 200kg, is stored underground until the sun burns out 5 billion years from now, how much Uranium will remain?

