



## Geometric Sequence - Word Problems



Name

Score

Solve and show all steps.

<p>A computer virus is spreading rapidly. It infects 3 computers in the first hour. In each subsequent hour, the number of newly infected computers is 4 times the number from the hour before. How many computers will be newly infected during the 8th hour?</p>	<p>Show all steps here</p>
<p>A super bouncy ball is dropped from a height of 256 feet. After each bounce, it rebounds to 75% of its previous height. a) What height will the ball reach after its 4th bounce? b) What height will it reach after its 8th bounce?</p>	<p>Show all steps here</p>
<p>A student invests \$500 in an account that earns 5% interest compounded annually. a) Write a geometric sequence to model the value of the investment at the end of each year. b) What will be the value of the investment at the end of 7 years?</p>	<p>Show all steps here</p>
<p>A scientist has 100 grams of a radioactive substance. The substance decays at a rate of 12% per day. How much of the substance will be left after 10 days?</p>	<p>Show all steps here</p>
<p>A YouTube video is gaining popularity. On its first day, it gets 1,000 views. Each day, the number of views is 1.5 times the number of views from the day before. On which day will the video first reach 20,000 views? (Hint: You'll need to solve for <math>n</math> using logarithms.)</p>	<p>Show all steps here</p>



Solve and show all steps.

49,152 computers will be newly infected during the 8th hour.

- a) The height after the 4th bounce will be 81 feet.
- b) The height after the 8th bounce will be approximately 25.63 feet.

- a) The sequence can be modeled by the formula  $A_n = 500(1.05)^n$ , where  $A_n$  is the value at the end of year  $n$ .
- b) The value of the investment will be approximately \$703.55 at the end of 7 years.

Approximately 27.85 grams of the substance will be left after 10 days.

The video will first reach 20,000 views on the 9th day.