

**College Mathematics**  
growth practice problems

For [ 1 ] to [10], classify each sequence below as linear, exponential, or neither.

For those that are linear or exponential, tell what the next number should be.

[ 1 ] 97, 90, 83, 76,...

[ 2 ] 1, 20, 400, 8000,...

[ 3 ] 1, 3, 6, 10, 15,...

[ 4 ] 2, 17, 32, 47,...

[ 5 ] 2.8, 4.5, 6.2, 7.9,...

[ 6 ] 3, 1.5, 0.75, 0.375,...

[ 7 ] 9, 10, 14, 21, 31,...

[ 8 ] 60, 65, 75, 90,...

[ 9 ] 450, 270, 162, 97.2,...

[10] 450, 270, 90, -90,...

[11] What is 1.7% of 3000?

[12] What percent of 0.7 is 0.21?

[13] 85 is what percent of 50?

[14] The price of a guitar went from \$700 to \$280.

[14a] The new price of the guitar is \_\_\_\_\_ times the original price.

[14b] You pay \_\_\_\_\_% of the original price.

[14c] You save \_\_\_\_\_% of the original price.

[15] If an amount drops 30%, the new amount will be \_\_\_\_\_ times the old amount.

[16] Multiplying a number by 27.5 is the same as ( increasing / decreasing ) the number \_\_\_\_\_%.

[17] Applying a 32% mark-up and then a 45% mark-up has the same effect as a \_\_\_\_\_% mark-up.

[18\*] What percent discount would "cancel out" a 70% mark-up?

[19] Suppose you put \$5000 into an account that grows 9% annually.

What will be the future value in 12 years?

[20] Suppose carbon-14 decays so that it loses 0.012% of its weight every year.

If 3 oz. of carbon-14 in a fossil started to decay 5000 years ago, how much should it weigh today?

For [21] to [24], use the following information:

In 1970, the population of Arlen was 57,000.

In 1980, the population of Arlen was 60,000.

[21] Assuming the population growth is linear, estimate the population in 1975.

[22] Assuming the population growth is linear, calculate the projected population in 2010.

[23\*] Assuming the population growth is exponential, estimate the population in 1975.

[24\*] Assuming the population growth is exponential, calculate the projected population in 2010.