

Growth & Decay Notes

A2

● geometric sequences:

- always start with u_0 → the constraint is $n \geq 1$

growth & decay

- growth: rule - 1 • 100 = %.
- decay: 1 - rule • 100 = %.

activity

1. Think about a cell phone that's \$100 and depreciates by 10% each year.

- a) What's the value after 1 year?
- b) What's the common ratio?
- c) What's the recursive formula?
- d) How do your common ratio & percent depreciation relate?

2. Now how about a bank account with an annual interest rate of 5%. You start with \$500 in the account.

- a) how much \$ do you have after the 1st year?
- b) What's the common ratio?
- c) What the recursive formula

● examples

- For #1 the rule is • 0.9 so decay = $1 - 0.9 = 0.1 \cdot 100 = 10\%$ decay
- For #2 the rule is • 1.05 so growth = $1.05 - 1 = 0.05 \cdot 100 = 5\%$ growth

examples

1. 2, 4, 8, ...

cr: $\cdot 2$

growth: $2 - 1 = 1 \cdot 100 = 100\%$ growth

growth b/c # are
increasing

2. 64, 16, 4, ...

cr: $\cdot \frac{1}{4}$

decay: $1 - \frac{1}{4} = \frac{3}{4} \cdot 100 = 75\%$ decay

decay b/c # are
decreasing