

$$18000(1-0.20) = 18000 - 18000(0.20)$$

decreasing by 20%
decay

\$14,400 after 1 year

$$14,400(1-0.20) = 11,520 \quad \text{2nd}$$

$$11,520(1-0.20) = 9,216 \quad \text{3rd}$$

$$9,216(1-0.20) = 7,372.8 \quad \text{4th}$$

$$7,372.8(1-0.2) = 5,898.24 \quad \text{5th}$$

18,000 (ent)
 18,000 x 0.8 (ent)
 (ent)
 (ent)
 (ent)
 (ent)

RECURSIVE formula

$$u_0 = 18000$$

$$u_n = (u_{n-1})(1-0.20), n \geq 1$$

$$u_5 = 5898.2$$

the car is worth \$5,898.24

~~During total, the car after 3 yrs & 9 months. => what does the insurance pay for (value of the car?)~~

Section 1.2 Modeling Growth & Decay

Grow or decay by a percent model?

Geometric Sequences

Growth

$$u_0 = a$$

$$u_n = (u_{n-1})(1 + \text{per})$$

a = starting value (principal)

per = growth percent (Interest)

$$1 + \text{per} = \text{ratio} > 1$$

Decay

$$u_0 = a$$

$$u_n = (u_{n-1})(1 - \text{per})$$

$$= a$$

per = decay percent

$$0 < 1 - \text{per} = \text{ratio} < 1$$

Write a model (sequence) for the following
find the value after 4 yrs

\$200 increase by 25% per month

$$u_0 = 200$$

$$u_n = (u_{n-1})(1 + 0.25), n \geq 1 \quad n = \# \text{ of months}$$

u_{48}

\$1000 decrease by 12% per year

$$u_0 = 1000$$

$$u_n = (u_{n-1})(1 - 0.12), n \geq 1 \quad n = \# \text{ years}$$

u_4

\$500 at 0.02% interest every day.

$$u_0 = 500$$

$$u_n = (u_{n-1})(1 + 0.02), n = \# \text{ of days}, n \geq 1$$

u_{365}