

Simple and Compound Interest Notes

Simple Interest

- Simple Interest grows linearly.
- It uses the same equation as an arithmetic sequence...

$$t(n) = mn + b$$

where m is the amount growing each time period and b is the starting value (or initial investment).

Example:

If Todd invests \$2500 and earned 3% simple interest, compounded annually, what is the equation for this situation?

To find the growth rate for each year multiply the starting amount by the percentage earned.

$$2500(.03) = \$75$$

Answer:

$$t(n) = \$75n + 2500$$

How much would he have after 3 years?

Answer: $t(3) = \$2725$

Compound Interest

- Compound Interest grows exponentially.
- It uses the same equation as a geometric sequence...

$$t(n) = ab^n$$

where a is the starting value (or initial investment) and b is the multiplier.

Example:

If Todd invests \$2500 and earned 3% compound interest, compounded annually, what is the equation for this situation?

Answer:

$$t(n) = \$2500(1.03)^n$$

How much would he have after 3 years?

Answer:

$$t(3) = \$2731.82$$

