

Simple and Compound Interest



Oct 14-7:15 PM



INTEREST



Mar 25-12:35 PM

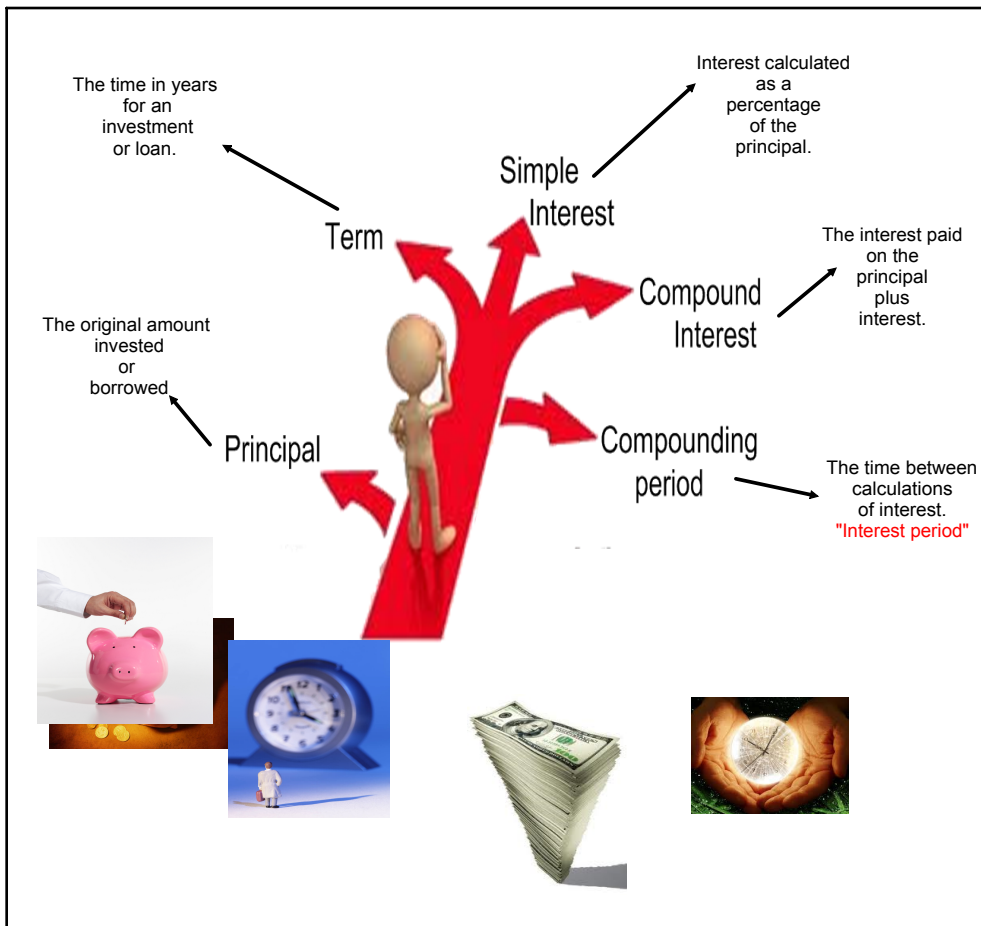
INTEREST???

- **What is Interest?**
Money that is added to an investment/loan.
- **Investments (money is earned)**
"Good interest"
 - **savings account** (very, very small interest)
 - **RRSP** (registered retirement savings plan)
 - **RESP** (registered educational savings plan)
 - **Canada Savings Bonds**
 - **GIC's** (guaranteed investment certificate)
 - **Tax Free Savings Accounts**
 - **Mutual Funds**
 - **Stock Market (no interest, shares)**
- **Loans (money owed)**
"Bad Interest"
 - **banks** (line of credit, personal loans, mortgage)
 - **business/stores**
 - **credit cards**
 - **Student Loans**

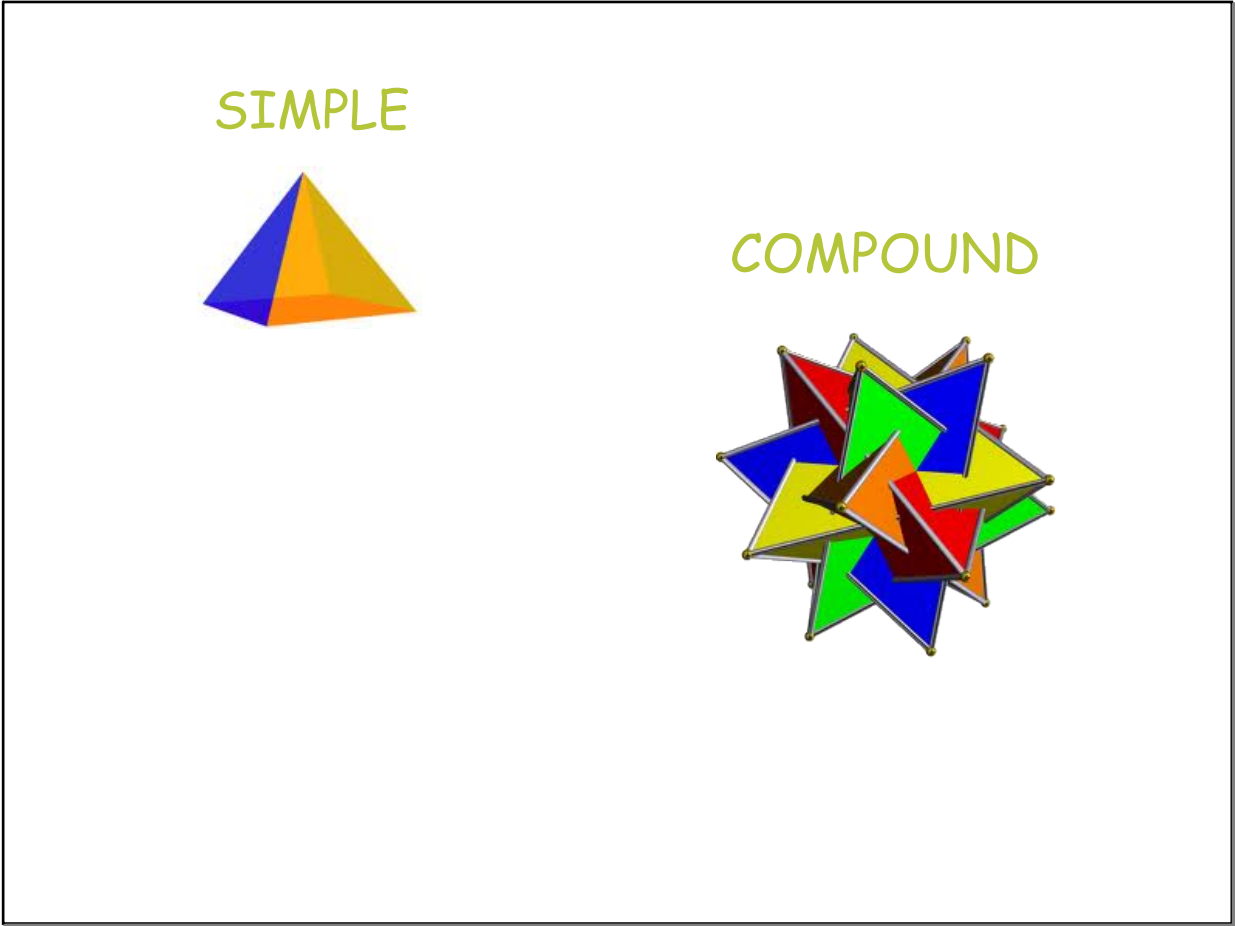
INTEREST - What is a good # ?

- **bank: 7-10 %**
- **business: 14 - 20%**
- **credit card (9 - 25 %)**


Nov 9-8:42 AM



Oct 14-7:40 PM



Oct 13-8:06 PM



SIMPLE Interest

Based on the **principal** (original amount) that is invested/borrowed. Interest is a certain percentage per **annum** (year). Often used for personal loans and short-term investments. The length of time for the investment/loan is called the **term**.

Interest = Principal x rate x time

I = Prt

$I = Prt$

&

$A = P + I$

- I - interest earned
- P - principal (original investment/loan)
- r - interest rate as a percent (change to a decimal)
- t - is ALWAYS time in years
(how long the money is invested/borrowed)
- A - amount of money including interest

Oct 13-8:06 PM

SIMPLE Interest



$$I = Prt$$

Time must be in
YEARS!!!

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Represent each amount of time in years.

3 months

$$\frac{3}{12} = 0.25$$

27 weeks

$$= \frac{27}{52}$$



62 days

$$\frac{62}{365}$$

8 years

8

Mar 25-1:15 PM



Gordon wants to invest \$2000.00.
His bank offers an investment option that earns **simple interest** at a rate of 1.75% per year.

$$I = Prt$$

$$I = (2000.00)(0.0175)(1)$$

$$I = \$35.00$$

$$I = ?$$

$$P = 2000$$

$$r = 0.0175$$

$$t = 1$$

Oct 14-8:25 PM



Gordon wants to invest \$2000.00.
His bank offers an investment option that earns **simple interest** at a rate of 1.75% per year for ~~1~~ 3 years.

$$I = Prt$$

$$I = (2000.00)(0.0175)(\del{1})(3)$$

$$I = \$105.00$$

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EXAMPLE #2: You borrowed \$500 from your older brother who charges 4.5 % per annum. How much will you owe him after 2 years?



$$I = Prt$$

$$I = (500)(0.045)(2)$$

$$I = \$45$$

$$A = P + I$$

$$A = 500 + 45$$

$$A = \$545$$

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EXAMPLE #3:

Betty-Ann's bank offers a simple interest rate of 4% per annum. How much interest would Betty-Ann earn on her investment of \$4000 after 8 months.

$$I = Prt$$

$$I = 4000 (0.04) (8/12)$$

$$I = \$106.67$$



Time



Oct 15-6:27 PM

$I = Prt$ must be in years $A = P + I$

↑ Interest earned ↑ Amount

Rearranging???

$$P = \frac{I}{rt} \quad | \quad r = \frac{I}{Pt} \quad | \quad t = \frac{I}{Pr}$$

Nov 10-9:29 AM

EXAMPLE #4:

The interest earned on a deposit is \$25 with an interest rate is 6% per annum. If the money was invested for 2 years, what is the principal?

KEEP IT SIMPLE

$I = \$25$
 $P = ?$
 $r = 0.06$
 $t = 2$

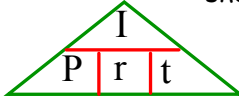
$$P = \frac{I}{rt}$$

$$P = \frac{25}{(0.06)(2)}$$

$$P = \$208.33$$

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EXAMPLE #5: Liberty wants to earn \$150 simple interest from a \$1200 investment over 5 1/2 years. What rate does she need from the bank?



$$\begin{aligned} I &= 150 \\ P &= 1200 \\ r &= ? \\ t &= 5.5 \end{aligned}$$

$$r = \frac{I}{P \cdot t}$$

$$r = \frac{150}{(1200)(5.5)}$$

$$\begin{aligned} r &= 0.0227 \quad) \times 100 \\ &= 2.27\% \end{aligned}$$

Jan 9-8:59 PM

HOMWORK...

Worksheet - Simple Interest.doc



Jan 9-10:13 PM

HANDOUTS

Simple Interest

1. Calculate the simple interest for the following loans:

	Principal	Rate/a	Time	Interest
a)	\$500	9%	90 d	1610
b)	\$1000	8.5%	150 d	3493
c)	\$2000	11%	10 months	19000
d)	\$2500	9.25%	1 a	23025
e)	\$5000	13.5%	2 a	13500
f)	\$10000	12 1/2%	3.5 a	4375

2. Calculate the simple interest and amount of the following loans:

	Principal	Rate/a	Time	Interest	Amount
a)	\$250	13%	60 d	5.34	255.34
b)	\$600	9%	135 d	19.97	619.97
c)	\$1000	12.5%	25 weeks	60.10	1060.10
d)	\$1350	14%	10 months	153.50	1503.50
e)	\$10000	11.5%	3 a	3450	13450
f)	\$25000	10 1/4%	5.5 a	14093.75	39093.75

3. Determine the missing values:

	Interest	Principal	Rate/a	Time
a)	\$100	\$1000	10%	1 a
b)	\$55	\$650	5%	67 a →
c)	\$10.50	\$450	2.5%	0.93
d)	\$200	\$4000	10%	6 months
e)	\$500	\$10000	2.5%	2 a
f)	\$10	\$675.93	6%	90 d
g)	\$150	\$2250	8%	10 months
h)	\$25.50	\$2346.7	4.5%	2.5 a
i)	36.23	\$950	4%	300 d
j)	898.75	\$5500	6.5%	30 months

Jan 4-9:16 PM

Attachments

Assignment - Simple Interest.doc