Principal: *How much money you borrowed, invested or lent someone*

Interest: *How much extra money is owed*

Final Amount (Future Value) = *Principal* + *Interest*

Simple Interest Formula:

$$I = P \cdot r \cdot t$$

$I =$ *Interest*
$P =$ *Principal*
$r =$ *Interest rate (decimal)*
$t =$ *time (years)*

$\frac{5}{100} = 0.05$

Example #1:
If you borrow $100 at 5% interest for 1 year:
  a) How much <u>interest</u> do you owe?
  b) What is the <u>final amount</u> you have to pay back?

a) $I = P \cdot r \cdot t = (\$100)(0.05)(1) = \boxed{\$5}$

b) Final amount $= A = \overset{P}{\$100} + \overset{I}{\$5} = \boxed{\$105}$

Example #2:
If I invest $380 (my iPod money) at 7.5% interest for 4 years (until the end of high school),
what is the <u>final amount</u> I have in my account?

$\$380 \cdot 0.0075 \cdot 4 = \underline{\$114} =$ *Interest*

Final amount $= A = \overset{I}{\$114} + \overset{P}{\$380} = \boxed{\$494}$

Example #3:
If you invest \$12,300 at 8.1% for 8 months: $=$ how many years? $= \dfrac{8 \text{ months}}{12 \text{ months}} = 0.6 \text{ years}$
 a) How much interest do you earn?
 b) What is the final amount you have in your account?

a) $I = \$12{,}300 \cdot 0.081 \cdot \dfrac{8}{12} = \boxed{\$664.20}$

b) $A = P + I = \$12{,}300 + \$664.20 = \boxed{\$12\,964.20}$

Example #4:
If you borrow \$890 at 12.7% for 73 days, what is the final amount you have to pay back?

$$t = \dfrac{73 \text{ days}}{365 \text{ days}} = 0.2 \text{ years}$$

$$\underset{P}{\$890} \cdot \underset{r}{0.127} \cdot \underset{t}{0.2} = \underline{\$22.61} = I$$

$$A = I + P = \$22.61 + \$890$$
$$= \boxed{\$912.61}$$