

Principal: How much money you borrowed, invested or lent to 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)

Example #1:

If you borrow \$100 at 5% interest for 1 year:

- a) How much interest do you owe?
- b) What is the final amount you have to pay back?

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

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

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

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 final amount I have in my account?

0.075

$$I = P \cdot r \cdot t = \$380 \cdot 0.075 \cdot 4 = \underline{\$114}$$

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

Example #3:

If you invest \$12,300 at 8.1% for 8 months:

a) How much interest do you earn?

b) What is the final amount you have in your account?

$$\begin{aligned} \frac{8 \text{ months}}{12 \text{ months}} &= \frac{2}{3} \text{ years} \\ &= 0.666\dots \text{ years} \end{aligned}$$

$$a) I = P \cdot r \cdot t = \$12,300 \cdot 0.081 \cdot \frac{2}{3} = \boxed{\$664.20}$$

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

Example #4:

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

$$\frac{12.7}{100} = 0.127$$

$$I = P \cdot r \cdot t = \$890 \cdot 0.127 \cdot \left(\frac{73 \text{ days}}{365 \text{ days}} \right) = \underline{\underline{\$22.61}}$$

↑
years

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