

Section 7.3 Simple Interest

Pg 1/6

Interest is a fee that is charged for borrowing money.

Simple interest is usually charged on short term loans (1 year or less).

Formula for Simple Interest:

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

Diagram illustrating the components of the Simple Interest formula:

- I : amount of simple interest
- P : principal amount (starting)
- r : annual interest rate as a decimal!
- t : time / term in years

Formula for Future Value of a Loan:

$$A = P + Prt$$

Diagram illustrating the components of the Future Value formula:

- A : future value amount after t years has passed
- P : principal
- Prt : interest

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Let's review how to change percents to decimals.

$$8\% = 8 \div 100 = 0.08$$

↑
percent

ext Change to a decimal.

a) $4\% = 4 \div 100 = \boxed{0.04}$

0.04

b) $1.5\% = 1.5 \div 100 = \boxed{0.015}$

c) $0.7\% = 0.7 \div 100 = \boxed{0.007}$

d) $29\% = 29 \div 100 = \boxed{0.29}$

e) $4\frac{1}{5}\% = 4\frac{1}{5} \div 100 = \frac{21}{500} = \boxed{0.042}$

↑
alpha y =
↓
u %

Math

2. ▶ Dec

enter twice

f) $5\frac{2}{3}\% = 5\frac{2}{3} \div 100 = \frac{17}{300} = \boxed{0.0567}$

ex 2 HW #1

<u>Principal</u>	<u>Rate</u>	<u>Time</u>	<u>Simple Interest</u>
\$24,000	9%	3yrs	\$

$$I = Prt$$

has to be a decimal
not a percent

$$9\% = 9 \div 100 = 0.09$$

$$I = (24,000)(0.09)(3)$$

$$I = \$6,480$$

ex 3 HW #3

<u>Princ</u>	<u>Rate</u>	<u>Time</u>	<u>Simple Interest</u>
\$	6%	2yrs	\$103.80

Change r to a decimal: $6\% = 6 \div 100 = 0.06$

$$I = Prt$$

$$103.80 = P(0.06)(2)$$

$$103.80 = P \cdot 0.12$$

divide by stuff with letter

$$0.12 \quad 0.12$$

$$103.80 \div 0.12$$

$$\$865 = P$$

ex 4. HW #9

Assume interest is simple interest.

Berger Car Rental borrowed \$8,537 at $9\frac{3}{5}\%$ interest to cover the increasing cost of insurance. Find the term of the loan if the interest is \$204.89. *time*

$$9\frac{3}{5}\% = 9\frac{3}{5} \div 100 = 0.096$$

$$I = Prt$$

$$204.89 = (8537)(0.096)t$$

$$\frac{204.89}{819.552} = \frac{819.552 \cdot t}{819.552}$$

$$204.89 \div 819.552$$

$$0.25 = t \quad \text{This is years !!!}$$

Alecs asked for months

Mult your answer by 12 to get the # of months.

$$0.25 \times 12 = \boxed{3 \text{ months}}$$

ex 5 Hw # 2

Princ	Rate	Time	Simple Interest
\$900	$\square\%$	2 yrs	\$83

$$I = Prt$$

$$83 = (900)(r)(2)$$

↑ ↑
mult

$$\frac{83}{1800} = \frac{1800 \cdot r}{1800}$$

$$\frac{83}{1800}$$

0
0
0

$$83 \div 1800$$

$$0.0461 = r$$

We have to change this to a %
We do this by multiplying by 100.

$$0.0461 \times 100 = 4.61\%$$

↑ ↑
tenth hundredth

Answer to the nearest tenth is:

$$4.6\%$$

only for
r

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ex 6 HW # 5

Find the future value.

$P = \$11,000$, $r = 7\%$, $t = 2$ years

$$A = P + Prt$$

$$7\% = 7 \div 100 = 0.07$$

$$A = 11,000 + (11,000)(0.07)(2)$$

$$A = \$12,540$$

* For HW #8

The problem asks for the monthly payment.

Find A using formula in ex 6 above then divide by the # of months (HW #8 says "24 equal monthly installments")