# Simple Interest, the Line in Money



I = Prt. A = P + Prt. Write the rate as a decimal. Simple interest adds the same dollars every year: a line.

Name _____ Date _____

## Words we use

say the math word, then the plain English

| WORD | PLAIN ENGLISH | WHAT YOU DO |
|---|---|---|
| Principal | The money you start with, the amount you put in (or borrow). The letter P. | It is the starting value, the y-intercept of the line. |
| Interest | The extra money earned on savings, or paid on a loan. The letter I. | I = Prt for simple interest. |
| Interest rate | The percent paid each year. The letter r. | Write it as a decimal to calculate: 5% is 0.05. |
| Simple interest | Interest paid on the principal only, the same amount every year. | Adds the same dollars each year: a line. |
| Balance | How much is in the account now. The letter A. | A = P + Prt. |
| Constant difference | The same amount added each step: the line pattern from Unit 7. | Here it is Pr dollars each year, the slope. |

## Part A Percent and decimal

| PERCENT | 5% | 12% | 3.5% | 0.8% | | |
|---|---|---|---|---|---|---|
| Decimal | | | | | 0.07 | 0.045 |

## Part B Build the table

$1,000 at 5% simple interest. Fill in the balance and the change each year.

| YEAR | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| balance | $1,000.00 | | | | | |
| change | | | | | | |

1. What family is this, and how do you know?

2. Write the balance as A = P + (Pr)t with numbers. Name the y-intercept and the slope in money words.

## Part C Find I and A

| P | R | T | I = PRT | A = P + PRT |
|---|---|---|---|---|
| $800 | 4% | 5 years | | |
| $1,500 | 6% | 3 years | | |
| $250 | 2% | 10 years | | |
| $4,000 | 3.5% | 2 years | | |

## Part D Solve the formula

Solve I = Prt for each letter. Write the answer as a stacked fraction and name the move.

| SOLVE FOR | MOVE | RESULT |
|---|---|---|
| r | | |
| t | | |
| P | | |

## Part E Use the solved forms

1. $600 earned $54 in 3 years. What was the rate?

2. How many years does $2,000 at 5% take to earn $400?

3. An account at 3% earned $90 in 2 years. What was the principal?

## Part F Exit ticket

1. $500 at 4% simple interest for 6 years: I and A.

2. In A = 300 + 15t, what do 300 and 15 mean?

## Answer key

Part A. 0.05, 0.12, 0.035, 0.008; 7%, 4.5%.

Part B. $1,050.00, $1,100.00, $1,150.00, $1,200.00, $1,250.00; change + $50 each year. 1. A line: constant difference of $50. 2. A = 1000 + 50t: y-intercept $1,000 (the principal), slope $50 per year (the interest added each year).

Part C. $160.00, $960.00. $270.00, $1,770.00. $50.00, $300.00. $280.00, $4,280.00.

Part D. r: divide both sides by Pt, r = I over Pt. t: divide by Pr, t = I over Pr. P: divide by rt, P = I over rt.

Part E. 1. 54 over 1800 = 0.03 = 3%. 2. 400 over 100 = 4 years. 3. 90 over 0.06 = $1,500.00.

Part F. 1. I = $120.00, A = $620.00. 2. $300 is the principal (y-intercept); $15 is added each year (slope), a 5% rate.