Simple Interest, the Line in Money

Simple interest pays the rate on the principal only: the same dollars every year. I = Prt. A = P + Prt. Constant difference, so a line: P is the y-intercept, Pr is the slope.

1 THE VOCABULARY
Words we use

Principal, P the money you start with.
Interest, I the extra money earned (or paid on a loan).
Rate, r the percent paid each year, as a decimal: 5% = 0.05.
Simple interest paid on the principal only: the same amount every year.
Balance, A how much is in the account now: P + Prt.

- Watch out for these.
- Writing 5% as 0.5. It is 0.05.
- Forgetting to add the principal: I is the interest, A is the balance.
- Using months for t. The rate is per year, so t is in years.
- Dividing by only one letter when solving for r: divide by Pt, both.

2 THE METHOD
Use the formula

1. RATE AS A DECIMAL divide the percent by 100.
2. INTEREST I = Prt: principal times rate times years.
3. BALANCE A = P + Prt.
4. ANOTHER LETTER divide both sides by what is multiplied onto it: r = IPt, t = IPr, P = Irt.
5. CHECK put the answer back in I = Prt.

WHY SIMPLE INTEREST IS A LINE
Each year adds the same Pr dollars, a constant difference. A = (Pr)t + P is y = mx + b: slope Pr, y-intercept P. Lines add.

3 TWO EXAMPLES
$1,000 at 5%; and find a rate

I each year = 1000 × 0.05 = $50	the same every year
1,000, 1,050, 1,100, 1,150	a constant difference of $50: a line
A = 1000 + 50t	y-intercept 1000, slope 50
$600 earned $54 in 3 years	find r
r = 54600 × 3 = 0.03 = 3%	divide both sides by Pt

CHECK BY GOING FORWARD
600 × 0.03 × 3 = 54. The rate of 3% gives back the $54.

SAY IT OUT LOUD
Simple interest adds the same dollars every year. Lines add. P starts it, Pr is added each year.