

# Personal Financial Literacy

## Algebra 1 • Section 1.5

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 12

### Quick Review and Helpful Hints

Algebra becomes easier when every symbol has a job. Read the operation first, keep signs attached to their terms, and check that each step still means the same thing as the original expression.

▷ **Example:** Simplify  $2(x + 6) + 3x$ .

**Work:** Distribute first:  $2(x + 6) = 2x + 12$ . Then combine like terms:  $2x + 12 + 3x = 5x + 12$ .

★ **Answer:**  $5x + 12$

### ◆ Practice Problems

Solve each problem. Show enough work that another student could follow your thinking.

- |                                                                                         |                                                                                   |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 1. Find simple interest: $P = \$300$ , $r = 4\%$ , $t = 5$ years. _____                 | 6. A \$150 item is marked up by 12%. Find the new price. _____                    |
| 2. Find the final amount for simple interest: $P = \$800$ , $r = 3\%$ , $t = 2$ . _____ | 7. Compound annually: \$500 at 6% for 2 years. _____                              |
| 3. Find 20% off \$75. _____                                                             | 8. Which is larger after one year: \$900 at 4% simple or compound annually? _____ |
| 4. Add 7% tax to \$40. _____                                                            | 9. A jacket costs \$64 after a 20% discount. What was the original price? _____   |
| 5. A salesperson earns 5% commission on \$2,400 in sales. Find the commission. _____    | 10. Find the percent increase from 50 to 62. _____                                |

### ◆ Word Problems

11. A bike costs \$220. It is discounted 15% and then taxed 8%. Find the final price. \_\_\_\_\_
12. Leah deposits \$1,200 at 5% simple interest for 3 years. Find the balance. \_\_\_\_\_



## Answer Keys

- |            |                   |
|------------|-------------------|
| 1. \$60    | 7. \$561.80       |
| 2. \$848   | 8. They are equal |
| 3. \$60    | 9. \$80           |
| 4. \$42.80 | 10. 24%           |
| 5. \$120   | 11. \$201.96      |
| 6. \$168   | 12. \$1,380       |

### Step-by-Step Explanations

- Simple interest is just  $I = Prt$ . Turn 4% into the decimal 0.04, then  $300(0.04)(5)$  earns you \$60.
- First find what the money earns:  $800(0.03)(2) = 48$ . The final amount is your original plus that growth: \$848.
- A discount is money coming off. Twenty percent of \$75 is \$15, so the price drops to  $75 - 15 = \$60$ .
- Tax gets added on top, never subtracted. Here  $0.07(40) = 2.80$ , so you pay  $40 + 2.80 = \$42.80$ .
- Commission is just a slice of total sales. Take 5% as 0.05 and multiply:  $0.05(2400) = \$120$ .
- A markup raises the price, so it gets added. The increase is  $0.12(150) = 18$ , pushing the new price to \$168.
- With compounding, each year grows on the last. Use  $A = 500(1.06)^2$ , and  $500(1.1236)$  rounds to \$561.80.
- Over a single year there's nothing for compounding to build on yet — both just multiply by 1.04, landing on the same \$936.
- If 20% came off, you paid 80% of the original. So 0.80 of the price is \$64 — undo that and the price was \$80.
- Percent change compares the jump to where you started. The rise is 12, and 12 out of 50 is 0.24, or 24%.
- Do the steps in order: the discount makes it  $220(0.85) = 187$ , then 8% tax on that gives  $187(1.08) = \$201.96$ .
- Her interest grows by  $1200(0.05)(3) = 180$ . The balance is her deposit plus that earnings:  $1200 + 180 = \$1,380$ .



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