

# Personal Financial Literacy

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

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

Score: \_\_\_\_\_ / 34

## Q Quick Review

**Simple interest** is interest paid only on the original amount. The formula is  $I = Prt$  — where  $P$  is the *principal* (starting amount),  $r$  is the annual interest rate as a *decimal* (so  $5\% = 0.05$ ), and  $t$  is time in years. The total after  $t$  years is  $A = P + I$ , or equivalently  $A = P(1 + rt)$ . **Compound interest** is interest paid on the principal *plus* any interest that's already accumulated. The general formula is  $A = P\left(1 + \frac{r}{n}\right)^{nt}$ , where  $n$  is how many times per year interest is compounded. When compounded annually,  $n = 1$  and the formula simplifies to  $A = P(1 + r)^t$ . **Percent applications:** a *discount* of  $r\%$  off price  $P$  gives sale price  $P(1 - r)$ ; a *tax* of  $r\%$  on price  $P$  gives total  $P(1 + r)$ ; *commission* earned on sales  $S$  at rate  $r$  is  $Sr$ . Always convert the percent to a decimal first.

## PRACTICE

Read each situation carefully. Round money answers to the nearest cent when needed.

- Nina puts \$200 into a simple-interest savings account that earns 3% per year. How much interest will she earn in 4 years?  
\_\_\_\_\_
- Omar deposits \$800 in a simple-interest account at 5% per year for 2 years. What is the total amount in the account at the end?  
\_\_\_\_\_
- Kayla deposits \$600 in an account that compounds annually at 6%. What is the balance after 1 year?  
\_\_\_\_\_
- Jordan invests \$1000 at 4% annual compound interest. About how much will the investment be worth after 3 years?  
\_\_\_\_\_
- A backpack is marked \$80 and is on sale for 25% off. What is the sale price before tax?  
\_\_\_\_\_
- A pair of shoes costs \$45 before sales tax. If the tax rate is 8%, what is the total cost?  
\_\_\_\_\_
- A salesperson sells \$3000 worth of furniture and earns a 6% commission. How much commission does the salesperson earn?  
\_\_\_\_\_
- A store buys a set of headphones for \$120 and marks the price up by 15%. What price should the store charge?  
\_\_\_\_\_
- Mia deposits \$500 in a simple-interest account at 7% per year. What will the account be worth after 5 years?  
\_\_\_\_\_
- Leo invests \$2000 in an account that compounds annually at 3%. What is the balance after 2 years?  
\_\_\_\_\_
- A calculator is priced at \$60. The store takes 20% off, then adds 7% sales tax to the sale price. What is the final cost?  
\_\_\_\_\_



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12. Two accounts each start with \$1000 for 3 years at 5%. One earns simple interest and the other compounds annually. How much more does the compound account have? \_\_\_\_\_
13. A school club puts \$1500 in a simple-interest certificate that earns 4% per year for 2 years. How much interest will the club earn? \_\_\_\_\_
14. A bicycle is listed for \$250 and the shop offers a 30% discount. What does the customer pay before tax? \_\_\_\_\_
15. A restaurant bill is \$72 before tip. If the customer leaves an 18% tip, what is the total paid? \_\_\_\_\_
16. A family invests \$5000 at 5% annual compound interest for 4 years. What is the investment worth after 4 years? \_\_\_\_\_
17. An account earns \$90 of simple interest on a \$1500 principal over 3 years. What annual interest rate was used? \_\_\_\_\_
18. A simple-interest account earns \$50 at a 2% annual rate over 5 years. How much principal was originally deposited? \_\_\_\_\_
19. A store sells a jacket for \$36 after applying a 10% markup. What was the store's original cost for the jacket? \_\_\_\_\_
20. A sales representative sells \$8500 worth of equipment and earns a 4.5% commission. How much commission is earned? \_\_\_\_\_

◆ VISUAL PRACTICE

Use the graph, table, chart, or diagram to answer the question.

21. The savings graph shows year 4. Find the balance.

Answer: \_\_\_\_\_

22. The table shows the cost of a service plan. What is the starting fee?

months	0	1	2	3
cost	12	17	22	27

Answer: \_\_\_\_\_

23. Use the receipt to find the final price after the discount and tax.

**Store Receipt**  
 Original price: \$80  
 Discount: 25% off  
 Tax on sale price: 6%

Answer: \_\_\_\_\_

24. The bar model shows commission on sales. How much commission is earned?

Answer: \_\_\_\_\_



## ◆ Word Problems

25. Aisha deposits \$1,200 at 3.5% simple interest for 4 years. How much will she have at the end?

Principal	Rate	Time
\$1200	3.5% simple	4 yr
Final amount	?	

Answer: \_\_\_\_\_

27. A car loan of \$15,000 has 6% simple interest for 5 years. How much interest is paid over the life of the loan, and what's the total amount repaid?

Principal	Rate	Time
\$15,000	6% simple	5 yr
Interest	?	
Total repaid	?	

Answer: \_\_\_\_\_

29. A phone plan has a \$25 monthly base fee plus \$0.10 for each text message. If Malik sends 180 texts, what is the monthly bill before tax?

Base fee	\$25
Texts	180
Cost per text	\$0.10
Monthly bill	?

Answer: \_\_\_\_\_

31. Jada works 18 hours at \$14 per hour. If 12% of her gross pay is withheld for taxes, what is her take-home pay?

Hours	18
Hourly pay	\$14
Tax withheld	12%
Take-home pay	?

Answer: \_\_\_\_\_

33. Movie tickets cost \$14 each. A family buys 4 tickets and uses a coupon for 20% off the ticket total. What is the cost before tax?

Ticket price	\$14
Tickets	4
Coupon	20% off
Total before tax	?

Answer: \_\_\_\_\_

26. A jacket lists at \$90. It's 30% off, then 8% sales tax is added. What's the final cost?

List price	\$90
Discount	30% off
Tax	8% on sale price
Final cost	?

Answer: \_\_\_\_\_

28. Maya invests \$2,500 at 4% compounded annually. How much will she have after 5 years?

Year	Multiplier	Balance
0	–	\$2500
1	$\times 1.04$	
5	$(1.04)^5$	?

Answer: \_\_\_\_\_

30. A sweater has a tag price of \$48. It is 15% off, and online shipping adds \$2.50. What is the total cost?

Price tag	\$48
Discount	15% off
Shipping	\$2.50
Total	?

Answer: \_\_\_\_\_

32. Alex saves \$35 each week for 12 weeks and then receives a \$50 bonus for reaching the goal. How much money does Alex have altogether?

Weekly savings	\$35
Weeks	12
Bonus	\$50
Total savings	?

Answer: \_\_\_\_\_

34. A driver buys 12 gallons of gas at \$3.45 per gallon and adds a \$6 car wash. What is the total cost?

Gas	12 gal
Price per gallon	\$3.45
Car wash	\$6
Total cost	?

Answer: \_\_\_\_\_



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## Answer Keys

- |               |               |                                      |
|---------------|---------------|--------------------------------------|
| 1. \$24       | 13. \$120     | 25. \$1,368                          |
| 2. \$880      | 14. \$175     | 26. \$68.04                          |
| 3. \$636      | 15. \$84.96   | 27. $I = \$4,500$ ; total = \$19,500 |
| 4. \$1124.86  | 16. \$6077.53 | 28. \$3,041.63                       |
| 5. \$60       | 17. 2%        | 29. \$43                             |
| 6. \$48.60    | 18. \$500     | 30. \$43.30                          |
| 7. \$180      | 19. \$32.73   | 31. \$221.76                         |
| 8. \$138      | 20. \$382.50  | 32. \$470                            |
| 9. \$675      | 21. \$1000    | 33. \$44.80                          |
| 10. \$2121.80 | 22. \$12      | 34. \$47.40                          |
| 11. \$51.36   | 23. \$63.60   |                                      |
| 12. \$7.63    | 24. \$382.50  |                                      |

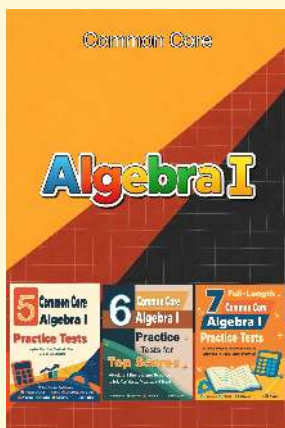
## Step-by-Step Tutor Notes

- Keep the order of operations in view, then simplify without skipping the sign check. Convert:  $3\% = 0.03$ . Multiply across:  $I = 200 \times 0.03 \times 4 = 24$  dollars. After simplifying, the answer is \$24.
- $5\% = 0.05$ .  $I = 800 \times 0.05 \times 2$ . Pair the easy multiplication first:  $800 \times 0.05 = 40$ , then  $40 \times 2 = 80$  dollars of interest. Add the principal:  $800 + 80 = 880$  dollars.
- With  $t = 1$ , the exponent just gives  $(1.06)^1 = 1.06$ . So  $A = 600 \times 1.06 = 636$ . That's a nice trick to remember: at  $t = 1$ , compound interest equals simple interest exactly.
- Compute  $(1.04)^3$  step by step.  $1.04^2 = 1.0816$ , then  $1.0816 \times 1.04 = 1.124864$ . Multiply by \$1000: \$1,124.86 to the nearest cent.
- Two ways to think about this. Either compute the discount and subtract:  $80 \times 0.25 = 20$ , so  $80 - 20 = 60$ . Or notice that 25% off means you pay 75%, so  $80 \times 0.75 = 60$ . Same answer either way.
- Tax is added on top.  $45 \times 0.08 = 3.60$  (the tax amount). Add it:  $45 + 3.60 = 48.60$ . Or do it in one shot:  $45 \times 1.08 = 48.60$ .
- Focus on the main idea of the problem, then simplify carefully. Commission is just a percent of sales:  $3000 \times 0.06 = 180$  dollars. So the answer is \$180.
- Markup adds on top, just like tax.  $120 \times 0.15 = 18$ , so  $120 + 18 = 138$  dollars.
- First find the interest:  $I = 500 \times 0.07 \times 5 = 175$  dollars. Then  $A = P + I = 500 + 175 = 675$ . Total in the account after 5 years.
- Work one inverse operation at a time and keep both sides balanced.  $(1.03)^2 = 1.0609$ . Multiply:  $2000 \times 1.0609 = 2121.80$  dollars. After simplifying, the answer is \$2121.80.
- Apply the steps in order. After 20% off:  $60 \times 0.80 = 48$ . Then add 7% tax:  $48 \times 1.07 = 51.36$ . The discount comes first because the tax is on the sale price, not the original.
- Simple:  $I = 1000 \times 0.05 \times 3 = 150$ , total \$1150. Compound:  $A = 1000(1.05)^3 = 1000 \times 1.157625 = \$1157.63$ . Difference:  $1157.63 - 1150.00 = \$7.63$ . (Compound always beats simple — the gap grows fast with time.)
- Take it one clear step at a time and keep the original question in mind.  $I = 1500 \times 0.04 \times 2$ .  $1500 \times 0.04 = 60$ , then  $60 \times 2 = 120$  dollars. So the answer is \$120.
- Focus on the main idea of the problem, then simplify carefully. Quick way: 30% off means you pay 70%, so  $250 \times 0.70 = 175$  dollars. So the answer is \$175.
- Tip =  $72 \times 0.18 = 12.96$ . Total =  $72 + 12.96 = 84.96$  dollars. (Restaurant math is just percent math in disguise.)
- Compute  $(1.05)^4$  step by step:  $1.05^2 = 1.1025$ , then  $(1.1025)^2 = 1.21550625$ . Multiply:  $5000 \times 1.2155 \dots = 6077.53$  dollars to the cent.
- Rearrange  $I = Prt$  to solve for  $r$ :  $r = \frac{I}{Pt}$ . Substitute the known values:  $r = \frac{90}{1500 \times 3} = \frac{90}{4500} = 0.02$ . Convert back to percent:  $0.02 = 2\%$ .
- From  $I = Prt$ , solve for  $P$ :  $P = \frac{I}{rt} = \frac{50}{0.02 \times 5} = \frac{50}{0.10} = 500$  dollars.
- After a 10% markup, the price is 1.10 times the original. So  $1.10x = 36$ , which gives  $x = \frac{36}{1.10} = 32.7272 \dots$ , or \$32.73 to the cent. (You divide out the markup when working backward.)
- $8500 \times 0.045 = 382.50$ . Quick check: 4.5% is between 4% (\$340) and 5% (\$425), and the answer lands right between — good.
- Focus on the main idea of the problem, then simplify carefully. Read the marked point at year 4. The balance is \$1000. So the answer is \$1000.
- This is a good place to slow down, check the notation, and simplify cleanly. The starting fee is the cost at month 0, which is \$12. So the answer is \$12.
- After the discount, the sale price is  $80(0.75) = 60$ . Add tax:  $60(1.06) = 63.60$ .
- This is a good place to slow down, check the notation, and simplify cleanly. Commission is the percent of sales:  $8500(0.045) = 382.50$ . So the answer is \$382.50.
- Find the interest first:  $I = Prt = 1200 \times 0.035 \times 4$ . Compute step by step:  $1200 \times 0.035 = 42$  (one year of interest), then  $42 \times 4 = 168$  over four years. Add to the principal:  $1200 + 168 = 1368$  dollars at the end.
- Discount first, then tax. After 30% off: the discount is  $90 \times 0.30 = \$27$ , so the sale price is  $90 - 27 = \$63$ . Tax is added on the sale price:  $63 \times 0.08 = \$5.04$ . Final:  $63 + 5.04 = \$68.04$ . (Order matters here — tax is on what you actually pay, not the original price.)
- Interest first:  $I = Prt = 15000 \times 0.06 \times 5$ . Step by step:  $15000 \times 0.06 = 900$  per year, times 5 years gives \$4,500. Total repaid is principal plus interest:  $15000 + 4500 = \$19,500$ . (That \$4500 is the cost of borrowing — the reason cars are more expensive on payments than cash.)
- Use  $A = P(1+r)^t$  with  $P = 2500$ ,  $r = 0.04$ ,  $t = 5$ . The factor is  $(1.04)^5$ . Compute step by step:  $1.04^2 = 1.0816$ ;  $1.0816 \times 1.04 = 1.124864$ ;  $1.124864 \times 1.04 = 1.16985856$ ;  $\dots \times 1.04 = 1.2166529$ . Multiply:  $2500 \times 1.2166529 \approx 3041.63$ . Maya has \$3,041.63 after five years.
- Start with the fixed fee, then add the text charge. The text charge is  $180 \times 0.10 = \$18$ . The total bill is  $25 + 18 = \$43$ .
- A 15% discount means the customer pays 85% of the tag price:  $48 \times 0.85 = \$40.80$ . Add shipping:  $40.80 + 2.50 = \$43.30$ .
- Gross pay is  $18 \times 14 = \$252$ . If 12% is withheld, she keeps 88%:  $252 \times 0.88 = \$221.76$ .
- Keep the order of operations in view, then simplify without skipping the sign check. The weekly savings total is  $35 \times 12 = \$420$ . Add the bonus:  $420 + 50 = \$470$ . After simplifying, the answer is \$470.
- Four tickets cost  $4 \times 14 = \$56$  before the coupon. A 20% discount means the family pays 80% of that amount:  $56 \times 0.80 = \$44.80$ .
- The gas costs  $12 \times 3.45 = \$41.40$ . Add the car wash:  $41.40 + 6$



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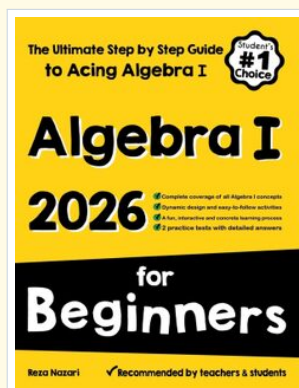
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