

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: _____

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: _____

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: _____

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: _____

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: _____

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: _____

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: _____

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: _____

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: _____

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 | |

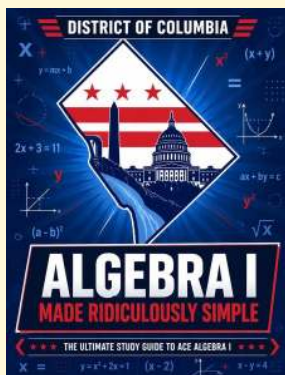
Step-by-Step Tutor Notes

- 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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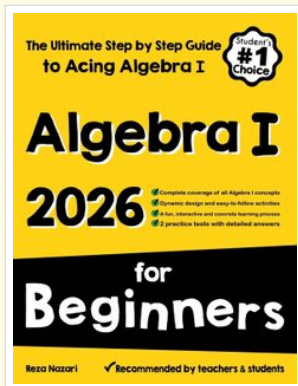
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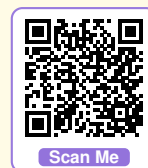
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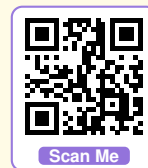
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