Personal Financial Literacy

Name: _____	Date: _____	Score: _____ / 34

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.

1. Nina puts $\$200$ into a simple-interest savings account that earns 3% per year. How much interest will she earn in 4 years?

_____

2. 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?

_____

3. Kayla deposits $\$600$ in an account that compounds annually at 6%. What is the balance after 1 year?

_____

4. Jordan invests $\$1000$ at 4% annual compound interest. About how much will the investment be worth after 3 years?

_____

5. A backpack is marked $\$80$ and is on sale for 25% off. What is the sale price before tax?

_____

6. A pair of shoes costs $\$45$ before sales tax. If the tax rate is 8%, what is the total cost?

_____

7. A salesperson sells $\$3000$ worth of furniture and earns a 6% commission. How much commission does the salesperson earn?

_____

8. A store buys a set of headphones for $\$120$ and marks the price up by 15%. What price should the store charge?

_____

9. Mia deposits $\$500$ in a simple-interest account at 7% per year. What will the account be worth after 5 years?

_____

10. Leo invests $\$2000$ in an account that compounds annually at 3%. What is the balance after 2 years?

_____

11. 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?

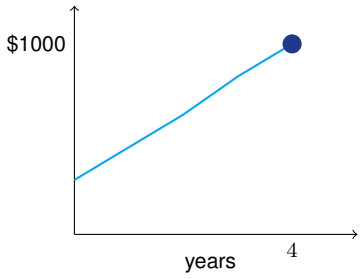
19. A store sells a jacket for $\$36$ after applying a 10% markup. What was the store's original cost for the jacket?

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

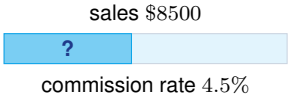
Answer: _____

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: _____

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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

1. 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 $\$24$.

2. $5\% = 0.05$. $I = 800 \times 0.05 \times 2$. 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.

3. 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.

4. 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.

5. 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.

6. 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: $45 \times 1.08 = 48.60$.

7. 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 $\$180$.

8. Markup adds on top, just like tax. $120 \times 0.15 = 18$, so $120 + 18 = 138$ dollars.

9. 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.

10. 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 $\$2121.80$.

11. 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.

12. 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.).

13. 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 $\$120$.

14. 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 $\$175$.

15. Tip $= 72 \times 0.18 = 12.96$. Total $= 72 + 12.96 = 84.96$ dollars. (Restaurant math is just percent math in disguise.).

16. Compute $(1.05)^4$ step by step: $1.05^2 = 1.1025$, then $(1.1025)^2 = 1.21550625$. Multiply: $5000 \times 1.2155\ldots = 6077.53$ dollars to the cent.

17. 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: $0.02 = 2\%$.

18. From $I = Prt$, solve for P: $P = \frac{I}{rt} = \frac{50}{0.02 \times 5} = \frac{50}{0.10} = 500$ dollars.

19. After a 10% markup, the price is 1.10 times the original. So $1.10x = 36$, which gives $x = \frac{36}{1.10} = 32.7272\ldots$, or $\$32.73$ to the cent. (You divide *out* the markup when working backward.).

20. $8500 \times 0.045 = 382.50$. Quick check: 4.5% is between 4% ($\$340$) and 5% ($\$425$), and the answer lands right between — good.

21. 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 $\$1000$.

22. 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 $\$12$.

23. After the discount, the sale price is $80(0.75) = 60$. Add tax: $60(1.06) = 63.60$.

24. 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 $\$382.50$.

25. 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.

26. 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.).

27. 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.).

28. Use $A = P(1+r)^t$ with $P = 2500$, $r = 0.04$, $t = 5$. The factor is $(1.04)^5$. Compute step by step: $1.04^2 = 1.0816$; $1.0816 \times 1.04 = 1.124864$; $1.124864 \times 1.04 = 1.16985856$; $\ldots \times 1.04 = 1.2166529$. Multiply: $2500 \times 1.2166529 \approx 3041.63$. Maya has $\$3{,}041.63$ after five years.

29. Start with the fixed fee, then add the text charge. The text charge is $180 \times 0.10 = \$18$. The total bill is $25 + 18 = \$43$.

30. A 15% discount means the customer pays 85% of the tag price: $48 \times 0.85 = \$40.80$. Add shipping: $40.80 + 2.50 = \$43.30$.

31. Gross pay is $18 \times 14 = \$252$. If 12% is withheld, she keeps 88%: $252 \times 0.88 = \$221.76$.

32. 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 $\$470$.

33. Four tickets cost $4 \times 14 = \$56$ before the coupon. A 20% discount means the family pays 80% of that amount: $56 \times 0.80 = \$44.80$.

34. The gas costs $12 \times 3.45 = \$41.40$. Add the car wash: $41.40 + 6$

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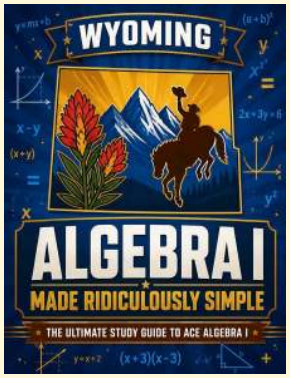

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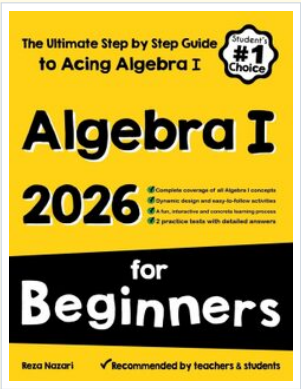

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