Percents: Tax, Discount, and Markup

Name: _____	Date: _____	Score: _____ / 24

Quick Review

Stores use percents every day. A **discount** lowers a price: a 25% discount means you pay $100\% - 25\% = 75\%$ of the original, so multiply by 0.75. **Sales tax** raises the price you actually pay: 8% tax means the total is $100\% + 8\% = 108\%$ of the price, so multiply by 1.08. **Markup** is how a store raises a price above its cost: a 35% markup means the selling price is 135% of cost, so multiply by 1.35. The shortcut is always the same — for an increase use $(1 + \text{percent})$, and for a decrease use $(1 - \text{percent})$, with the percent written as a decimal.

◇ **Example:** A jacket costs $\$80$ and is on sale for 25% off. Find the sale price.
⇒ A 25% discount means you don't pay the whole price — you pay what's left, which is $100\% - 25\% = 75\%$. Write 75% as the decimal 0.75. Now multiply the original price by it: $\$80 \times 0.75 = \$60$. Another way to see it: 25% of $\$80$ is $\$20$ off, and $\$80 - \$20 = \$60$. Either path lands on the same sale price.

Answer: $\$60$

PRACTICE

Find the final price or amount. Watch whether the percent goes up or down.

1. $\$40$ item, 8% tax _____
2. $\$60$ item, 7% tax _____
3. $\$25$ item, 20% off _____
4. $\$50$ item, 30% off _____
5. $\$120$ item, 6% tax _____
6. $\$90$ item, 10% off _____
7. $\$200$ item, 15% off _____
8. $\$35$ item, 5% tax _____
9. $\$80$ item, 25% off _____
10. $\$150$ item, 8% tax _____
11. $\$45$ item, 40% off _____
12. $\$70$ item, 9% tax _____
13. Cost $\$100$, 35% markup _____
14. Cost $\$24$, 50% markup _____
15. $\$300$ item, 12% off _____
16. $\$18$ item, 6.5% tax _____
17. Cost $\$250$, 20% markup _____
18. $\$64$ item, 75% off _____
19. Sale price $\$48$ after 20% off; find original _____
20. Tax *amount* on $\$130$ at 7% _____

Word Problems

21. A pair of sneakers is priced at $\$250$. They are marked 30% off, and then 8% sales tax is added to the sale price. What does the customer pay? _____

22. A store buys backpacks for $\$24$ each and marks them up 50%. If a backpack later goes on sale for 25% off the marked price, what is the sale price? _____

23. At a restaurant the bill is $\$60$. Carlos adds a 20% tip on the $\$60$ and then realizes 7% tax of $\$4.20$ was already included in the $\$60$. How much does he leave in total (bill plus tip)? _____

24. A tablet's sale price is $\$170$ after a 15% discount. What was the original price before the discount? _____

Answer Keys

1.	$\$43.20$	**13.**	$\$135.00$
2.	$\$64.20$	**14.**	$\$36.00$
3.	$\$20.00$	**15.**	$\$264.00$
4.	$\$35.00$	**16.**	$\$19.17$
5.	$\$127.20$	**17.**	$\$300.00$
6.	$\$81.00$	**18.**	$\$16.00$
7.	$\$170.00$	**19.**	$\$60.00$
8.	$\$36.75$	**20.**	$\$9.10$
9.	$\$60.00$	**21.**	$\$189.00$
10.	$\$162.00$	**22.**	$\$27.00$
11.	$\$27.00$	**23.**	$\$72.00$
12.	$\$76.30$	**24.**	$\$200.00$

Step-by-Step Explanations

1. Tax raises the price: $40 \times 1.08 = 43.20$.
2. Multiply by 1.07: $60 \times 1.07 = 64.20$.
3. You pay 80%: $25 \times 0.80 = 20$.
4. You pay 70%: $50 \times 0.70 = 35$.
5. Multiply by 1.06: $120 \times 1.06 = 127.20$.
6. You pay 90%: $90 \times 0.90 = 81$.
7. You pay 85%: $200 \times 0.85 = 170$.
8. Multiply by 1.05: $35 \times 1.05 = 36.75$.
9. You pay 75%: $80 \times 0.75 = 60$.
10. Multiply by 1.08: $150 \times 1.08 = 162$.
11. You pay 60%: $45 \times 0.60 = 27$.
12. Multiply by 1.09: $70 \times 1.09 = 76.30$.
13. Markup raises the price: $100 \times 1.35 = 135$.
14. Selling price is 150% of cost: $24 \times 1.50 = 36$.
15. You pay 88%: $300 \times 0.88 = 264$.
16. Multiply by 1.065: $18 \times 1.065 = 19.17$.
17. Selling price is 120% of cost: $250 \times 1.20 = 300$.
18. You pay only 25%: $64 \times 0.25 = 16$.
19. The sale price is 80% of the original, so divide: $48 \div 0.80 = 60$.
20. Just the tax part: $130 \times 0.07 = 9.10$.
21. First the discount: $250 \times 0.70 = \$175$. Then add tax on that amount: $175 \times 1.08 = \$189.00$.
22. Marked price: $24 \times 1.50 = \$36$. Sale price: $36 \times 0.75 = \$27.00$.
23. The tip is $60 \times 0.20 = \$12$. The total he leaves is the bill plus the tip: $\$60 + \$12 = \$72.00$. (The tax was already part of the $60.)
24. After 15% off, the sale price is 85% of the original. So divide: $170 \div 0.85 = \$200.00$.

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