

Percents: Tax, Discount, and Markup

Name: _____ Date: _____ Score: _____ / 24

Q 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.

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

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