Markups, Discounts, and Sales Tax

Explore ideas and representations

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

A markup adds a percent of cost; a discount removes a percent of the tag. Tax is calculated on the taxable sale price. A 40 dollar tag discounted 25% becomes 30 dollars; 10% tax adds 3 dollars for 33 dollars total.

Worked example

Example costs \$40.00 before a 25% discount. Then 10% sales tax applies to the discounted price. Find the final cost.

1. Discount: $40(25/100) = 10$ dollars.
2. Discounted price: $40 - 10 = 30$ dollars.
3. Tax: $30(10/100) = 3$; total $30 + 3 = 33$ dollars.
Answer: \$33.00

Practice Problems

Show your thinking.

1. Backpack costs \$80.00 before a 25% discount. Then 8% sales tax applies to the discounted price. Find the final cost.

2. Skates costs \$60.00 before a 10% discount. Then 5% sales tax applies to the discounted price. Find the final cost. Check the total by dividing it by both percentage multipliers to recover the tag price.

3. Tent costs \$120.00 before a 20% discount. Then 5% sales tax applies to the discounted price. Find the final cost. Would reversing the two percentage multipliers change the total? Verify numerically, ignoring intermediate rounding.

4. A shop pays \$30.00 for a lamp and marks it up 40% of cost. Find the markup and selling price.

5. A shop pays \$50.00 for a lamp and marks it up 20% of cost. Find the markup and selling price. Write a multiplier equation for selling price s and cost c.

6. A shop pays \$80.00 for a lamp and marks it up 25% of cost. Find the markup and selling price.

7. Art supplies costs \$96.00 before a 25% discount. Then 5% sales tax applies to the discounted price. Find the final cost.

8. A price after a 25% markup is 30 dollars. Recover the original cost.

Answer Key

1. \$64.80
2. \$56.70 Recovered tag is \$60.00.
3. \$100.80 No; both orders give \$100.80.
4. Cost \$30.00; markup \$12.00; normal selling price \$42.00.
5. Cost \$50.00; markup \$10.00; normal selling price \$60.00. $s = 1.20c$.
6. Cost \$80.00; markup \$20.00; normal selling price \$100.00.
7. \$75.60
8. Original cost 24 dollars.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Discount: $80(25/100) = 20$ dollars.
2. Discounted price: $80 - 20 = 60$ dollars.
3. Tax: $60(8/100) = \frac{24}{5}$; total $60 + \frac{24}{5} = \frac{324}{5}$ dollars.

Problem 2

1. Discount: $60(10/100) = 6$ dollars.
2. Discounted price: $60 - 6 = 54$ dollars.
3. Tax: $54(5/100) = \frac{27}{10}$; total $54 + \frac{27}{10} = \frac{567}{10}$ dollars.
4. $56.70/(0.90(1.05)) = 60$ dollars.

Problem 3

1. Discount: $120(20/100) = 24$ dollars.
2. Discounted price: $120 - 24 = 96$ dollars.
3. Tax: $96(5/100) = \frac{24}{5}$; total $96 + \frac{24}{5} = \frac{504}{5}$ dollars.
4. $120(0.80)(1.05) = 120(1.05)(0.80) = 100.80$ dollars.

Problem 4

1. Markup amount: $30(40/100) = 12$ dollars.
2. Selling price: $30 + 12 = 42$ dollars.
3. Reverse check: $42 \div (1 + 40/100) = 30$ dollars.

Problem 5

1. Markup amount: $50(20/100) = 10$ dollars.
2. Selling price: $50 + 10 = 60$ dollars.
3. Reverse check: $60 \div (1 + 20/100) = 50$ dollars.
4. $s = c + 0.20c = 1.20c$.

Problem 6

1. Markup amount: $80(25/100) = 20$ dollars.
2. Selling price: $80 + 20 = 100$ dollars.
3. Reverse check: $100 \div (1 + 25/100) = 80$ dollars.

Problem 7

1. Discount: $96(25/100) = 24$ dollars.
2. Discounted price: $96 - 24 = 72$ dollars.
3. Tax: $72(5/100) = \frac{18}{5}$; total $72 + \frac{18}{5} = \frac{378}{5}$ dollars.

Problem 8

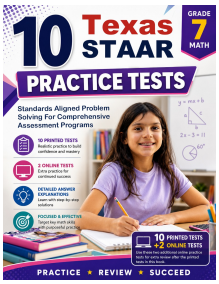
1. Let C be cost. A 25% markup makes $C + 0.25C = 1.25C = 30$.
2. Divide the given price by 1.25: $C = 30/1.25 = 24$ dollars.
3. Check $24(1.25) = 30$ dollars.

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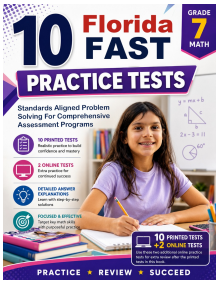
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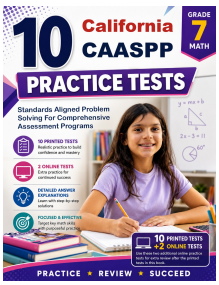
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