

Grade 7 · Percent Problems: Tax, Tips, Markups and Discounts · Worksheet Answer Key

Common Core 7.RP.A.3 · mathovore.fr

Full worked solutions for the 20 percent problems. Each answer shows the percent written as a decimal, the multiplication, the check, and the final amount in dollars. Compare every step with the worksheet work, especially the order of discount, tax and fees in the multistep problems.

Grade 7 Common Core: 7.RP.A.3

Problem 1: Sales tax

Tax: $0.07 \times 28 = 1.96$. Total: $28 + 1.96 = 29.96$.

School Store	
Backpack	\$28.00
Sales tax (7%)	\$1.96
Total	\$29.96

The completed receipt.

Answer: **tax \$1.96; total \$29.96.**

Problem 2: Sales tax on a bike lock

Tax: $0.06 \times 24.50 = 1.47$. Total: $24.50 + 1.47 = 25.97$. Check with the multiplier: $24.50 \times 1.06 = 25.97$.

Item	Amount
Bike lock	\$24.50
Tax (6%)	\$1.47
Total	\$25.97

The completed receipt.

Answer: **tax \$1.47; total \$25.97.**

Problem 3: Tip at a restaurant

Tip: $0.20 \times 36 = 7.2$. Total: $36 + 7.2 = 43.2$. Check with the multiplier: $36 \times 1.20 = 43.2$.

Answer: **tip \$7.20; total \$43.20.**

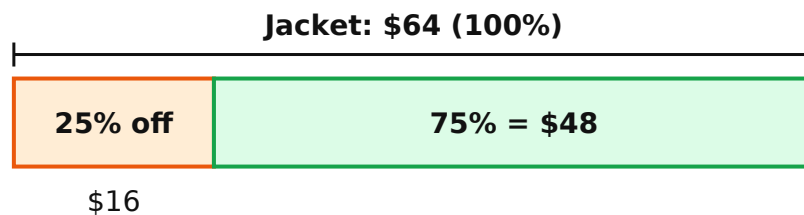
Problem 4: Tip on a pizza order

Tip: $0.15 \times 42 = 6.3$. Total: $42 + 6.3 = 48.3$. Check with the multiplier: $42 \times 1.15 = 48.3$.

Answer: **tip \$6.30; total \$48.30.**

Problem 5: Discount

Discount: $0.25 \times 64 = 16$. Sale price: $64 - 16 = 48$. Check: $64 \times 0.75 = 48$.

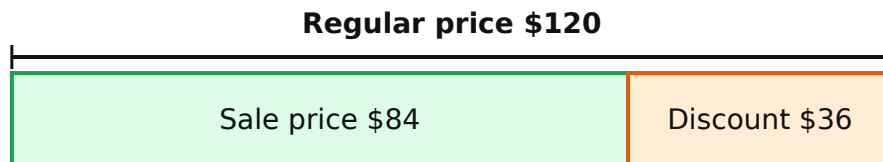


The discount is \$16 and the sale price is \$48.

Answer: **discount \$16; sale price \$48.**

Problem 6: Sale price of a tent

Discount: $0.30 \times 120 = 36$. Sale price: $120 - 36 = 84$. Check: $120 \times 0.70 = 84$.



The discount is \$36 and the sale price is \$84.

Answer: **discount \$36; sale price \$84.**

Problem 7: Markup

Markup: $0.40 \times 45 = 18$. Selling price: $45 + 18 = 63$. Check: $45 \times 1.40 = 63$.

Answer: **markup \$18; selling price \$63.**

Problem 8: Markup on a bike

Markup: $0.35 \times 80 = 28$. Selling price: $80 + 28 = 108$. Check: $80 \times 1.35 = 108$.

Answer: **markup \$28; selling price \$108.**

Problem 9: Percent off

Discount in dollars: $90 - 63 = 27$. Divide by the regular price: $\frac{27}{90} = 0.30 = 30\%$.

Check: $0.30 \times 90 = 27$ and $90 - 27 = 63$. Answer: **30% off.**

Problem 10: Commission

a. $0.05 \times 3200 = 160$.

b. $0.05 \times S = 200$, so $S = 200 \div 0.05 = 4000$. Check: $0.05 \times 4000 = 200$.

Answer: **(a) \$160; (b) \$4,000 in sales.**

Problem 11: Pay with commission

Commission: $0.03 \times 8,500 = 255$. Total pay: $400 + 255 = 655$.

Answer: **commission \$255; total pay \$655.**

Problem 12: Simple interest

$I = Prt = 1200 \times 0.025 \times 3$. First, $1200 \times 0.025 = 30$ dollars per year. Then $30 \times 3 = 90$. Balance: $1200 + 90 = 1290$.

Answer: **interest \$90; balance \$1,290.**

Problem 13: Time to earn interest

a. $I = Prt = 1,500 \times 0.03 \times 1 = 45$ dollars per year.

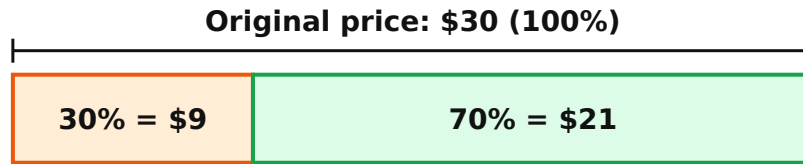
b. The interest grows by \$45 each year, so $45t = 180$ and $t = 180 \div 45 = 4$. Check: $1,500 \times 0.03 \times 4 = 180$.

Answer: **(a) \$45; (b) 4 years.**

Problem 14: Finding the original price

The sale price is $100\% - 30\% = 70\%$ of the original. So $0.70 \times P = 21$ and $P = 21 \div 0.70 = 30$. Check:

$$30 \times 0.70 = 21.$$



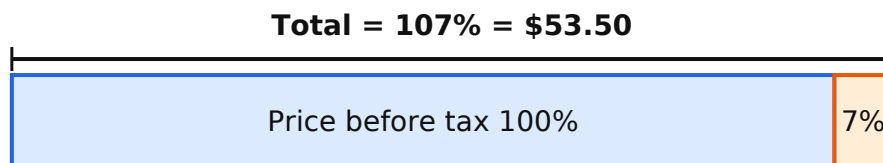
The original price is \$30.

Answer: **\$30**.

Problem 15: Price before tax

The total is $100\% + 7\% = 107\%$ of the price before tax, so $1.07 \times P = 53.50$.

$$P = 53.50 \div 1.07 = 50. \text{ Tax: } 53.50 - 50 = 3.50.$$



The total is 107% of the price before tax.

Check: $0.07 \times 50 = 3.50$ and $50 + 3.50 = 53.50$. Answer: **\$50.00 before tax; tax \$3.50**.

Problem 16: Discount then tax

Sale price: $85 \times 0.80 = 68$. Tax: $68 \times 0.08 = 5.44$. Total: $68 + 5.44 = 73.44$.

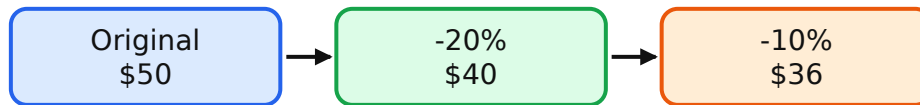


The discount comes first, then the tax is figured on the sale price.

Answer: **\$73.44**.

Problem 17: Sale plus coupon

- $0.80 \times 50 = 40$, so the sale price is \$40.
- $0.90 \times 40 = 36$, so the final price is \$36.
- Savings: $50 - 36 = 14$. $\frac{14}{50} = 0.28 = 28\%$.



The two discounts are not added: 28%, not 30%.

Answer: **(a) \$40 (b) \$36 (c) 28% savings.**

Problem 18: Ticket fees

Tickets: $4 \times 45 = 180$. Service fee: $0.12 \times 180 = 21.6$. Total: $180 + 21.6 + 5 = 206.6$.

Answer: **\$206.60.**

Problem 19: Group dinner bill

- Tax: $0.08 \times 64 = 5.12$. Tip: $0.20 \times 64 = 12.80$.
- Total: $64 + 5.12 + 12.80 = 81.92$.
- Each friend: $81.92 \div 4 = 20.48$.

Part of bill	Amount
Food	\$64.00
Tax (8%)	\$5.12
Tip (20%)	\$12.80
Total	\$81.92

The bill for the group.

Answer: **(a) tax \$5.12, tip \$12.80 (b) \$81.92 (c) \$20.48 each.**

Problem 20: Comparing savings plans

- Plan A: $2000 \times 0.03 \times 5 = 300$. Plan B: $1800 \times 0.04 \times 5 = 360$.
- Plan A: $2000 + 300 = 2300$. Plan B: $1800 + 360 = 2160$.
- Plan B earns \$60 more interest, but Plan A ends with $2300 - 2160 = 140$ dollars more because it starts with more money.

Answer: **(a) \$300 and \$360; (b) \$2,300 and \$2,160; (c) Plan B earns more interest, Plan A ends with more money.**