

Percent Change Path

Use ratios and percents to solve problems with more than one step.

GRADE 7 • NY-7.RP.3

NY-7.RP.3 "Use proportional relationships to solve multistep ratio and percent problems."

NAME _____

DATE _____

ONE CHANGE AT A TIME

Use a ratio or percent as a multiplier. When a situation has more than one change, complete one change at a time, and use the new amount for the next percent.

WORKED EXAMPLE

An online order costs \$64. It is discounted 15%, then 5% sales tax is added. What is the final cost?

1. Find the discount: $0.15 \times 64 = 9.60$.
2. Subtract the discount: $64 - 9.60 = 54.40$.
3. Find the tax: $0.05 \times 54.40 = 2.72$.
4. Add the tax: $54.40 + 2.72 = 57.12$.

Answer: \$57.12

PRACTICE 6 problems

- 1** A game costs \$30. It is discounted 20%, then you use a \$3 coupon. What is the final price?

ANSWER _____

- 2** For every 2 red club members, there are 7 blue club members. The club has 36 red members. Then $\frac{1}{3}$ of the blue members leave. How many members are in the club now?

ANSWER _____

- 3** A meal costs \$30. An 18% tip is added, and 4 friends split the total equally. How much does each friend pay?

ANSWER _____

- 4** A pack of 4 notebooks costs \$14. The store marks up the unit price by 50%. How much do 3 notebooks cost at the marked-up unit price?

ANSWER _____

- 5** A 12-cup drink is 30% juice. How many cups of water must be added to make the drink 20% juice?

ANSWER _____

- 6** A streamer gets 72 likes from 240 viewers. If the number of viewers rises by 25% and the likes-to-viewers ratio stays the same, how many likes should the streamer expect?

ANSWER _____

APPLY IT Show your work

- 1** You and 3 friends buy 4 team hoodies at \$25 each. The store takes 30% off the order, then adds 8% sales tax. What is the total cost of the order?

WORK SPACE

ANSWER _____

- 2** At a school music festival, 35% of 240 ticket buyers are students. Of the student ticket buyers, $\frac{1}{4}$ buy a \$6 glow band. How much money is collected from glow band sales to students?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A jacket costs \$60 after a 20% discount and then a \$12 coupon. What was the original price? Explain your reasoning with an equation or steps.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A game costs \$30. It is discounted 20%, then you use a \$3 coupon. What is the final price?	\$21
2	For every 2 red club members, there are 7 blue club members. The club has 36 red members. Then $\frac{1}{3}$ of the blue members leave. How many members are in the club now?	120 members
3	A meal costs \$30. An 18% tip is added, and 4 friends split the total equally. How much does each friend pay?	\$8.85
4	A pack of 4 notebooks costs \$14. The store marks up the unit price by 50%. How much do 3 notebooks cost at the marked-up unit price?	\$15.75
5	A 12-cup drink is 30% juice. How many cups of water must be added to make the drink 20% juice?	6 cups
6	A streamer gets 72 likes from 240 viewers. If the number of viewers rises by 25% and the likes-to-viewers ratio stays the same, how many likes should the streamer expect?	90 likes

PART 2 • APPLY IT

1. **\$75.60** The hoodies cost \$100 before the discount. After the 30% discount, the cost is \$70, and 8% tax adds \$5.60.
2. **\$126** Find the number of student ticket buyers first: $0.35 \times 240 = 84$. Then $\frac{1}{4}$ of 84 is 21, and $21 \times 6 = 126$.

CHALLENGE

The original price was \$90. After a 20% discount, 80% remains, so $0.80x - 12 = 60$ and $x = 90$.

Accept equivalent equations and proportional reasoning. Money answers should include dollars and cents when needed.