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Stuck? Scan  
for the anchor  
chart

## Percent Change Forward and Backward

Name \_\_\_\_\_ Date \_\_\_\_\_ Correct \_\_\_\_\_ / 10

**1 Forward: Apply the Change** - write the change as ONE multiplier first. Up 8% is  $\times 1.08$ . Down 25% is  $\times 0.75$ .

1. 8% tax on a \$50 game.

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$\times$  \_\_\_\_\_  $\rightarrow$  total \$

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2. 25% off a \$48 hoodie.

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$\times$  \_\_\_\_\_  $\rightarrow$  price \$

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3. A \$35 lamp, marked up 40%.

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$\times$  \_\_\_\_\_  $\rightarrow$  price \$

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**2 Backward: Undo the Change** - the given price is the AFTER. Divide by the multiplier. Do not take the percent off the new price.

4. After 30% off, a jacket costs \$42.

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Original price \$

5. With 8% tax included, the receipt says \$86.40.

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Before tax \$

6. After a 20% raise, Amara earns \$54 a day.

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Before the raise \$



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## Percent Change Forward and Backward

### 3 Two Changes and a Comparison - each change uses a new base. Show the middle price.

9. A \$100 skateboard is 10% off. At the register, a coupon takes another 10% off the sale price. What is the final price, and what total percent came off?

\$100 → after the first 10%: \_\_\_\_\_ → after the second 10%: \_\_\_\_\_

Final price: \$ \_\_\_\_\_ Total off: \_\_\_\_\_ %

10. A \$40 sweater. You may use one coupon: **30% off** or **\$15 off**. Which saves more money, and by how much?

saves \$ more



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Answer Key

## Percent Change Forward and Backward

### 1 Forward: Apply the Change

1. 8% tax on a \$50 game.

$$100\% + 8\% = 108\%$$

$$\times \frac{1.08}{54.00} \rightarrow \text{total \$}$$

2. 25% off a \$48 hoodie.

$$100\% - 25\% = 75\%$$

$$\times \frac{0.75}{36.00} \rightarrow \text{price \$}$$

3. A \$35 lamp, marked up 40%.

$$100\% + 40\% = 140\%$$

$$\times \frac{1.40}{49.00} \rightarrow \text{price \$}$$

### 2 Backward: Undo the Change

4. After 30% off, a jacket costs \$42.

$$42 \div 0.70 = 60$$

$$\text{check: } 60 \times 0.70 = 42$$

Original price: \$ 60

5. With 8% tax included, the receipt says \$86.40.

$$86.40 \div 1.08 = 80$$

$$\text{check: } 80 \times 1.08 = 86.40$$

Before tax: \$ 80

6. After a 20% raise, Amara earns \$54 a day.

$$54 \div 1.20 = 45$$

*NOT 54 minus 20%, that gives 43.20*

Before the raise: \$  
45

7. A phone's price dropped 15%, to \$102.

$$102 \div 0.85 = 120$$

*NOT 102 plus 15%, that gives 117.30*

Original price: \$ 120

8. A 5% booking fee brought a trip's total to \$210.

$$210 \div 1.05 = 200$$

$$\text{check: } 200 \times 1.05 = 210$$

Before the fee: \$ 200

*A wrong answer fails the forward check.*



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Answer Key

### 3 Two Changes and a Comparison

9. A \$100 skateboard is 10% off, then another 10% off the sale price.

\$100 → after the first 10%: \$90 → after the second 10%: \$81

$$100 \times 0.90 = 90, \text{ then } 90 \times 0.90 = 81$$

*the first 10% takes \$10 off 100. The second takes \$9 off the new base of 90*

Final price: \$ 81 Total off: 19 % *not 20%*

10. A \$40 sweater: 30% off, or \$15 off?

$$30\% \text{ of } 40 = \$12 \text{ off, so you pay } \$28$$

*\$15 off means you pay \$25. A percent is only as big as its base.*

\$15 off saves \$ 3 more