

*I can solve real-world percent problems.*

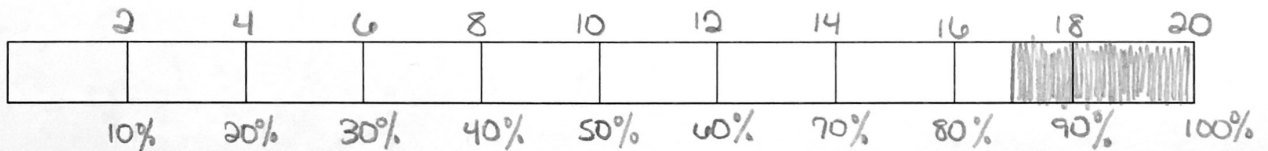
**Markups and Markdowns**

When something is marked down, the new price is less than 100% of the original price.

When something is marked up, the new price is more than the 100% of the original price.

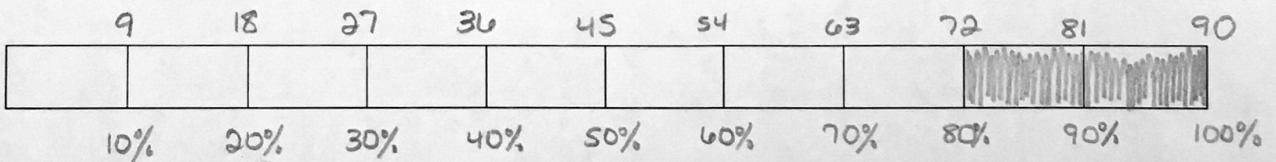
**Introductory Examples:**

- 1) If a shirt is marked down 20%, what percent of the original price do you pay? 80%
- 2) If a bike is marked down 60%, what percent of the original price do you pay? 40%
- 3) If a store marks up a gallon of milk 15%, what percent of the original price do you pay? 115%
- 4) If a store marks up a pair of jeans 40%, what percent of the original price do you pay? 140%
- 5) Dillard's is having a Columbus Day sale, and shorts originally priced \$20 are marked down 15%. \$17



- 6) They say that smoking can reduce your life expectancy by 20%. If the life expectancy for a non-smoker is 90 years old, what is the life expectancy for a smoker?

72 years old



**Example 1:**

If a \$60 PlayStation game is marked down 20%, what is the sale price?

$$60 \cdot 0.90 = \$54$$

**Example 2 (You Try):**

If the Smith family's dinner bill was \$40 and they used a 40% off coupon, what did they pay?

$$0.60 \cdot 40 = \$24$$

**Example 3:**

If Target marks their \$40 perfumes up 20%, what do they charge for the perfume?

$$1.20 \cdot 40 = \$48$$

**Example 4 (You Try):**

If Wal-Mart marks their \$5 shampoos up 30%, what do they charge for the shampoo?

$$1.30 \cdot 5 = \$6.50$$

## Working Backwards with Markup and Markdowns

### Together:

1) Kelsey bought flowers from florist for her mom's birthday. Kelsey bought a dozen roses and was charged \$19.08. If tax was 6%, how much was the cost of the dozen roses before tax?

Equation:  $1.06 \cdot x = 19.08$  Solution:  $\$18$   
or  
 $x + .06x = 19.08$

2) A TV is selling at a discount of 20%. The sale price is \$799.20. What as the original price of the TV?

Equation:  $0.80x = 799.20$  Solution:  $\$999$   
or  
 $x - .20x = 799.20$

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### On Your Own:

3) Nick bought a card for his grandmother. He was charged \$5.35. If the tax was 7%, how much was the cost of the card before tax?

Equation:  $1.07x = 5.35$  Solution:  $\$5$

4) Mark bought a sweater at a discount of 15%. The sale price is \$23.80. What was the original price of the sweater?

Equation:  $0.85 = 23.80$  Solution:  $\$28$

### BONUS 1:

Grace bought a computer at 30% off. She had to pay 6% tax. If Grace spent \$593.60, what was the original price of the computer?

Equation:  $0.70x \cdot 1.06 = 593.60$  Solution:  $\$800$

### BONUS 2:

Nathan bought a shirt at 20% off. He had to pay 7% tax. If Nathan spend \$32.24, what was the original price of the shirt?

Equation:  $0.80x \cdot 1.07 = 32.24$  Solution:  $\$37.66$