

Name _____

Date _____

Multi-Step Ratio Problems

1. A bicycle shop advertised all mountain bikes priced at a $\frac{1}{3}$ discount.
 - a. What is the amount of the discount if the bicycle originally costs \$327?
 - b. What is the discount price of the bicycle?
 - c. Explain how you found your solution to part (b).

2. A hand-held digital music player was marked down by $\frac{1}{4}$ of the original price.
 - a. If the sales price is \$128.00, what is the original price?
 - b. If the item was marked up by $\frac{1}{2}$ before it was placed on the sales floor, what was the price that the store paid for the digital player?
 - c. What is the difference between the discount price and the price that the store paid for the digital player?

1. A salesperson will earn a commission equal to $\frac{1}{32}$ of the total sales. What is the commission earned on sales totaling \$24,000?
2. DeMarkus says that a store overcharged him on the price of the video game he bought. He thought that the price was marked $\frac{1}{4}$ of the original price, but it was really $\frac{1}{4}$ off the original price. He misread the advertisement. If the original price of the game was \$48, what is the difference between the price that DeMarkus thought he should pay and the price that the store charged him?
3. What is the cost of a \$1,200 washing machine after a discount of $\frac{1}{5}$ the original price?
4. If a store advertised a sale that gave customers a $\frac{1}{4}$ discount, what is the fractional part of the original price that the customer will pay?
5. Mark bought an electronic tablet on sale for $\frac{1}{4}$ off the original price of \$825.00. He also wanted to use a coupon for $\frac{1}{5}$ off the sales price. Before taxes, how much did Mark pay for the tablet?
6. A car dealer paid a certain price for a car and marked it up by $\frac{7}{5}$ of the price he paid. Later he sold it for \$24,000. What is the original price?
7. Joanna ran a mile in physical education class. After resting for one hour, her heart rate was 60 beats per minute. If her heart rate decreased by $\frac{2}{5}$, what was her heart rate immediately after she ran the mile?

1. A bicycle shop advertised all mountain bikes priced at a $\frac{1}{3}$ discount.

a. What is the amount of the discount if the bicycle originally costs \$327?

$$\frac{1}{3}(\$327) = \$109 \text{ discount}$$

b. What is the discount price of the bicycle?

$$\frac{2}{3}(\$327) = \$218 \text{ discount price. Methods will vary.}$$

c. Explain how you found your solution to part (b).

Answers will vary.

2. A hand-held digital music player was marked down by $\frac{1}{4}$ of the original price.

a. If the sales price is \$128.00, what is the original price?

$$x - \frac{1}{4}x = 128$$

$$\frac{3}{4}x = 128$$

$$x = \$170.67$$

b. If the item was marked up by $\frac{1}{2}$ before it was placed on the sales floor, what was the price that the store paid for the digital player?

$$x + \frac{1}{2}x = 170.67$$

$$\frac{3}{2}x = 170.67$$

$$x = \$113.78$$

c. What is the difference between the discount price and the price that the store paid for the digital player?

$$\$128 - \$113.78 = \$14.22$$

1. A salesperson will earn a commission equal to $\frac{1}{32}$ of the total sales. What is the commission earned on sales totaling \$24,000?

$$\left(\frac{1}{32}\right)\$24,000 = \$750$$

2. DeMarkus says that a store overcharged him on the price of the video game he bought. He thought that the price was marked $\frac{1}{4}$ off the original price, but it was really $\frac{1}{4}$ off the original price. He misread the advertisement. If the original price of the game was \$48, what is the difference between the price that DeMarkus thought he should pay and the price that the store charged him?

$$\frac{1}{4} \text{ of } \$48 = \$12 \text{ (the price DeMarkus thought he should pay); } \frac{1}{4} \text{ off } \$48 = \$36; \text{ Difference between prices } \\ \$36 - \$12 = \$24$$

3. What is the cost of a \$1,200 washing machine after a discount of $\frac{1}{5}$ the original price?

$$\left(1 - \frac{1}{5}\right) 1200 = \$960 \text{ or } 1200 - \frac{1}{5}(1200) = \$960$$

4. If a store advertised a sale that gave customers a $\frac{1}{4}$ discount, what is the fractional part of the original price that the customer will pay?

$$1 - \frac{1}{4} = \frac{3}{4} \text{ of original price}$$

5. Mark bought an electronic tablet on sale for $\frac{1}{4}$ off the original price of \$825.00. He also wanted to use a coupon for $\frac{1}{5}$ off the sales price. Before taxes, how much did Mark pay for the tablet?

$$\$825 \left(\frac{3}{4}\right) = \$618.75, \text{ then } \$618.75 \left(\frac{4}{5}\right) = \$495$$

6. A car dealer paid a certain price for a car and marked it up by $\frac{7}{5}$ of the price he paid. Later he sold it for \$24,000. What is the original price?

$$x + \frac{7}{5}x = \$24,000, \frac{12}{5}x = \$24,000, x = \$10,000$$

7. Joanna ran a mile in physical education class. After resting for one hour, her heart rate was 60 beats per minute. If her heart rate decreased by $\frac{2}{5}$, what was her heart rate immediately after she ran the mile?

$$x - \frac{2}{5}x = 60, \frac{3}{5}x = 60, x = 100 \text{ beats per minute}$$