MATH 020 Support 2: Applications of Percent

Changing a Percent to a Decimal:

Move the decimal two places left and remove the % symbol.

Changing a Decimal to a Percent:

Move the decimal two places right and write the % symbol.

Converting Time

There is 360 or 365 days in one year

There is 52 weeks in one year

There is 12 months in one year

There is 4 quarters in one year

Exercises:

1. Write the percent as a decimal.

a) $25\% = \dfrac{25}{100} = 0.25$

b) $3.74\% = \dfrac{3.74}{100} = 0.0374$

c) $0.25\% = \dfrac{0.25}{100} = 0.0025$

2. Write the decimal as a percent.

a) $0.045 = 0.045 \times 100\% = 4.5\%$

b) $0.45 = 0.45 \times 100\% = 45\%$

c) $4.5 = 4.5 \times 100\% = 450\%$

3. Convert the following into years.

a) 3 months $\times \dfrac{1 \text{ year}}{12 \text{ months}} = \dfrac{3}{12} = \dfrac{1}{4}$ year

b) 6 months $\times \dfrac{1 \text{ year}}{12 \text{ months}} = \dfrac{6}{12} = \dfrac{1}{2}$ year

c) 15 weeks $\times \dfrac{1 \text{ year}}{52 \text{ weeks}} = \dfrac{15}{52}$ year

d) 8 months $\times \dfrac{1 \text{ year}}{12 \text{ months}} = \dfrac{8}{12} = \dfrac{2}{3}$ year

e) 220 days $\times \dfrac{1 \text{ year}}{365 \text{ Days}} = \dfrac{44}{73}$ year

f) 30 months $\times \dfrac{1 \text{ year}}{12 \text{ months}} = 2.5 \text{ years} = \dfrac{5}{2}$ year

4. The sales tax in Washington DC is 5.75%. Find the tax charged on a purchase of $45.65.

$5.75\% = 0.0575$

Tax $= 45.65 \ast 0.0575 = \boxed{2.62 \text{ dollars}}$
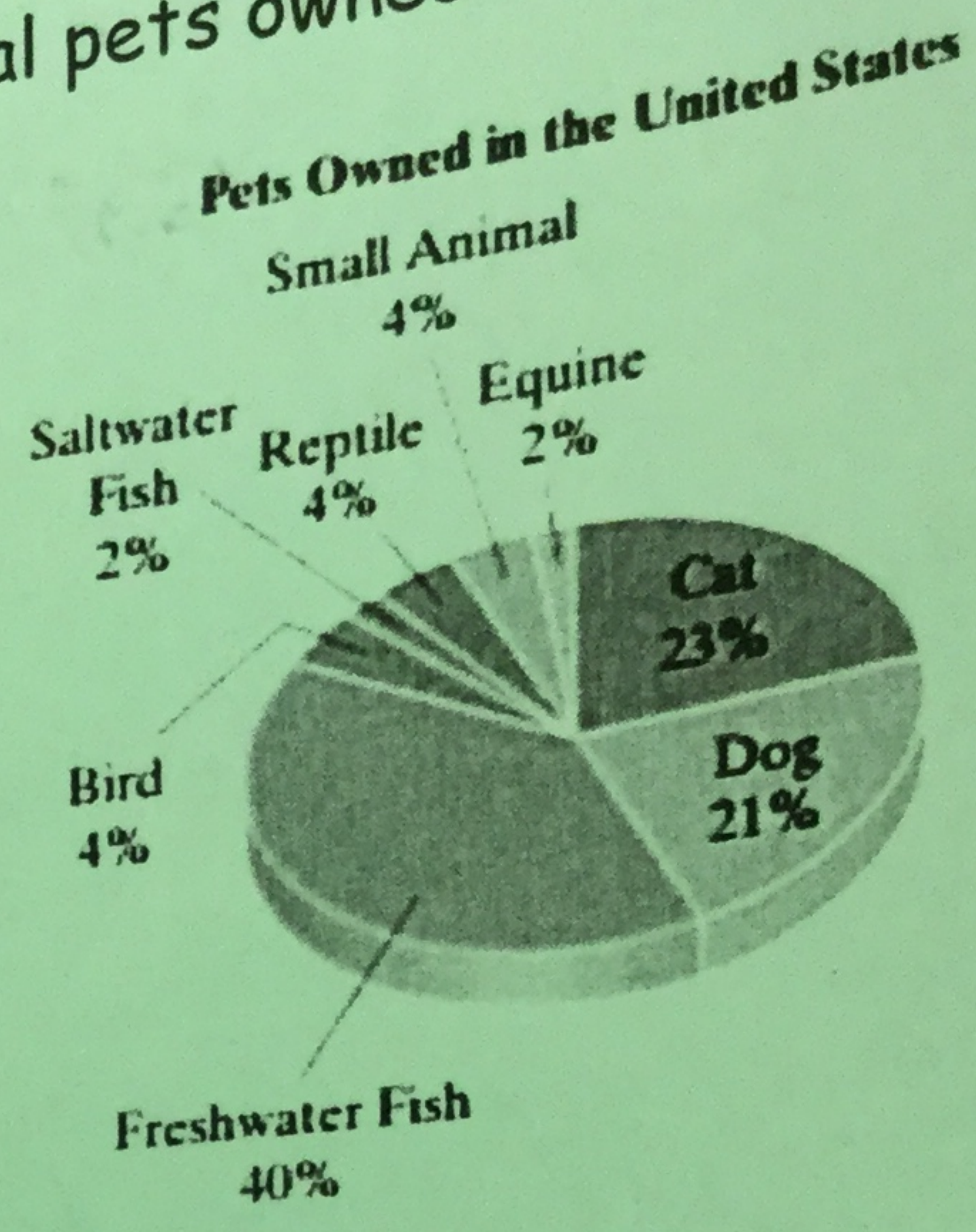
total $= 45.65 + 2.62 = $
$= \$48.27$

5. The circle (pie) graph shows the breakdown of total pets owned in the U.S.

a) What percent of pets owned are cats (or) dogs?

$$23\% + 21\% = 44\%$$

Pets Owned in the United States

Small Animal 4%

Saltwater Fish 2%

Reptile 4%

Equine 2%

Cat 23%

Dog 21%

Bird 4%

b) What percent of pets are not birds?

$$100\% - 4\% = 96\%$$

Freshwater Fish 40%

Source: American Pet Products Association

c) Approximately 377 million pets are owned in the U.S. How many are cats?

$$377000000 \times 0.23 = 86{,}710{,}000$$

6. A used car dealership reduced the price of a certain car by 8%. The price of the car before the discount was $22,000.

a) What is the discount amount?

$$22000 \times 0.08 = \$1760$$

b) What is the new price of the car?

$$22000 - 1760 = \$20240$$

7. Find the original price of a pair of shoes if the sale price is $45 after a 20% discount.
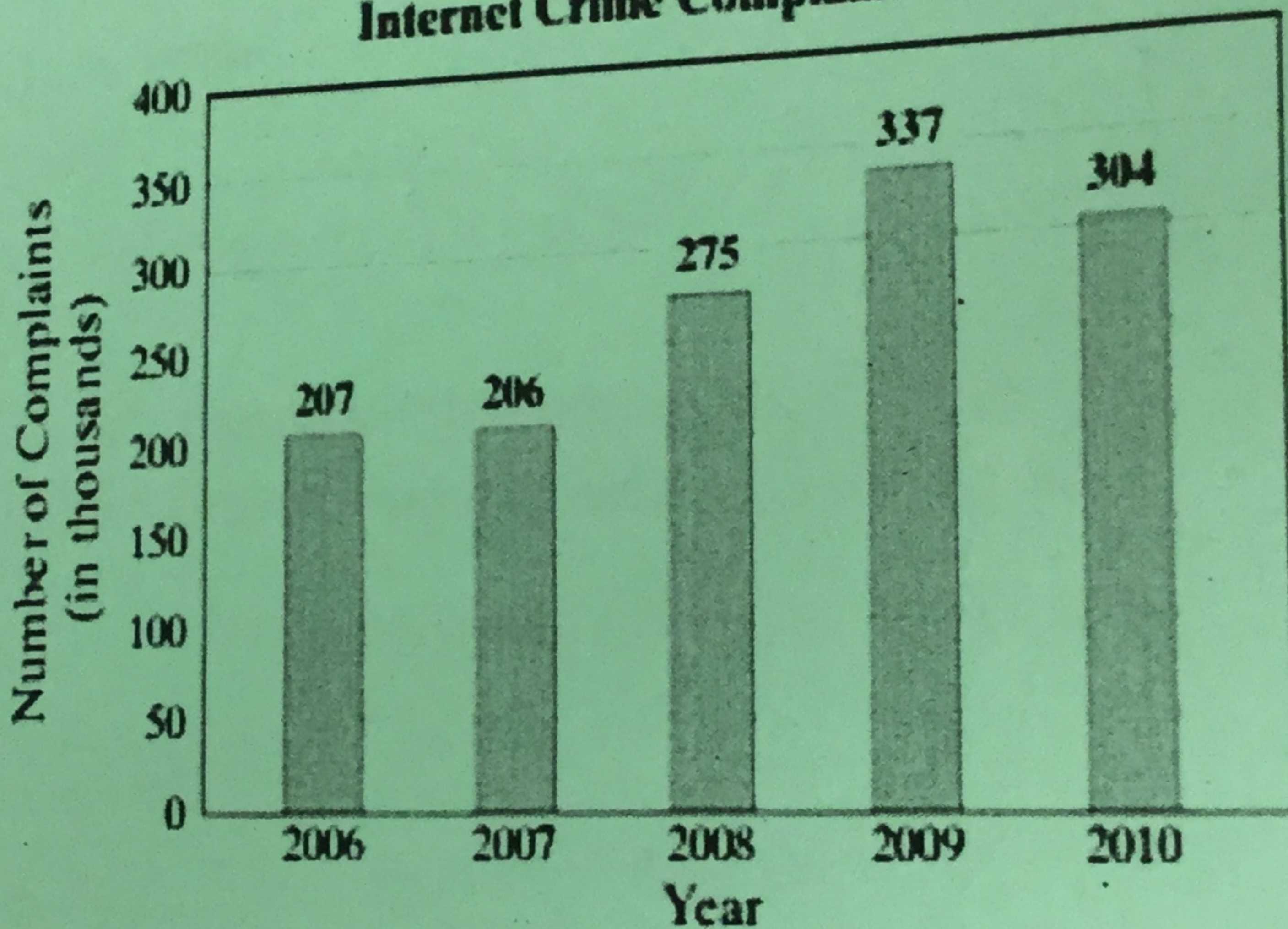
$$\text{Sales price} = \text{original} - \text{Discount}$$

$$\$45 = X - 0.20X$$

$$45 = 0.80X$$

$$X = \frac{45}{0.80} = \$56.25$$

8. The bar graph represents the yearly complaints received by the Internet Crime Complaint Center. Use the graph to:

Yearly Complaints Received by the Internet Crime Complaint Center

a) Find the percent increase from 2008 to 2009.

$$\frac{337 - 275}{275} \times 100\% = 22.55\%$$

b) Find the percent decrease from 2009 to 2010.

$$\frac{304 - 337}{337} \times 100\% =$$

$$= -9.79\%$$

OR $= -9.80\%$