Applications of Percent

Name __Solutions__

1. Round each dollar amount to the nearest cent.

   a. $168.257

   $168.26

   b. $57.234

   $57.23

   c. $3.396

   $3.40

2. If you purchase something in Washington State, you have to pay a statewide sales tax of 6.5%. Find the sales tax on a purchase of $33.60.

   proportion

   $$\frac{x}{33.60} = \frac{6.5}{100}$$

   $$\frac{100x}{100} = \frac{6.5(33.6)}{100} = \$2.18$$

   Shortcut

   .065(33.60)

   = $2.18

   The sales tax is $2.18

3. Some localities add on a local tax to the statewide sales tax. Seattle adds on a local tax of 3.1% to the statewide sales tax of 6.5%. Find the total sales tax on a purchase of $45 if you purchase it in Seattle.

   Total tax: 3.1 + 6.5 = 9.6%

   $$\frac{x}{45} = \frac{9.6}{100}$$

   $$\frac{100x}{100} = \frac{45(9.6)}{100} = \$4.32$$

   .096(45)

   = $4.32

   The tax is $4.32

4. If a shirt costs $25 and the employee discount is $1.25, what percentage is the employee discount?

   $$\frac{1.25}{25} = \frac{x}{100}$$

   $$\frac{25x}{25} = \frac{1.25(100)}{25} = 5\%$$

   shortcut

   $$\frac{1.25}{25} = .05$$

   5%

   The discount is 5%

5. If a house is worth $250,000 and the property tax is $3,750, what is the property tax rate?

   $$\frac{3750}{250,000} = \frac{x}{100}$$

   $$\frac{250,000x}{250,000} = \frac{3750(100)}{250,000} = 1.5\%$$

   $$\frac{3750}{250,000} = .015$$

   1.5%

   The tax rate is 1.5%

6. A book normally sells for $16.50 and is on sale at 40% off. What is the sale price of the book?

   $$\frac{x}{16.50} = \frac{40}{100}$$

   $$\frac{100x}{100} = \frac{40(16.50)}{100}$$

   $$x = \$6.60$$

   Super shortcut

   .60(16.50)

   = $9.90

$16.50 − 6.60

The cost of the book is $9.90

7. The tuition at PCC increased from $1267 per term to $1291 per term.

   a. What is the increase in tuition?

   $$\$1291 - 1267 = 24$$

   b. What is the percent of increase in tuition?

   $$\frac{24}{1267} = \frac{x}{100}$$

   $$\frac{1267x}{1267} = \frac{24(100)}{1267} = 1.9$$

   short way
   $$\frac{24}{1267} = .0189 \qquad 1.9\%$$

8. A company decreased their workforce from 1000 to 950 employees.

   a. What is the decrease in the workforce?

   50 employees

   b. What is the percent of decrease in the workforce?

   $$\frac{50}{1000} = \frac{x}{100}$$

   $$1000x = 50(100)/1000 = 5\%$$

   $$\frac{50}{1000} = .05 \text{ or } 5\%$$

9. The boss says, "Remember last year when business was bad and I cut everyone's salary by 10%? Well, we have had a better year and I am going to raise your pay by 10%!"
   Will the employees' salaries be the same as they were before the salary cuts? Show your reasoning.

   $10/hr

   take 10% away $.10(10) = \$1.00$

   Now $9/hr

   add 10% $.10(9) = \$.90$ you are only making $9.90

10. Use the information on the paycheck stub to find the tax rate for the federal withholding, worker's compensation, Medicare, and Social Security taxes that were deducted from the gross pay.

Check Date: January 12, 2012	Employee # 460927
Gross Pay	$ 520.00
Taxes	
Federal Tax	$ 46.80
Worker's Compensation	$ 16.90
Medicare	$ 7.80
Social Security	$ 38.48
Net Pay	$ 410.02

Federal Tax
$$\frac{46.80}{520} = .09 \text{ or } 9\%$$

Worker's Comp
$$\frac{16.90}{520} = .0325 \text{ or } 3.25\%$$

Medicare
$$\frac{7.80}{520} = .015 \text{ or } 1.5\%$$

Social Security
$$\frac{38.48}{520} = .074 \text{ or } 7.4\%$$

Total tax is 21.15%.