

A "unit price" means "how many dollars (and cents) does one item cost. This is "per unit" and dollars is in the numer.

67. A 24 ounce cup of Twinklebuck's coffee costs \$2.28, and a 20 ounce cup of Sunbuck's coffee costs \$1.80. Which has the better value? (oz. is an abbreviation for ounces.)

Twinklebucks:

Ratio is:

$$\frac{\text{price}}{\text{ounces}}: \frac{\$ 2.28}{24 \text{ oz.}} = \frac{\$ 0.095}{1 \text{ oz}}$$

long division:

$$24 \overline{) 2.2800}$$

$$\begin{array}{r} 0.095 \\ -216 \\ \hline 120 \\ -120 \\ \hline 0 \end{array}$$

Sunbucks:

$$\frac{\$ 1.80}{20 \text{ oz.}} = \frac{\$ 0.090}{1 \text{ oz}}$$

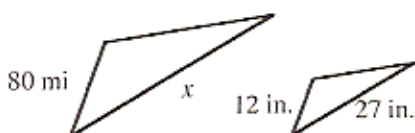
long division:

$$20 \overline{) 1.800}$$

$$\begin{array}{r} 0.09 \\ -180 \\ \hline 0 \end{array}$$

Sunbucks coffee is the better buy.

68. Given the two similar triangles, solve for x.



	large $\Delta$	small $\Delta$
long side	x	27
short side	80	12

proportion:  $\frac{x}{80} = \frac{27}{12}$

simplify the right side:  $\frac{x}{80} = \frac{9}{4}$

cross-multiply:  $4 \cdot x = 80 \cdot 9$

$$4 \overline{) 720}$$

$$\begin{array}{r} 180 \\ -4 \\ \hline 32 \\ -32 \\ \hline 00 \end{array}$$

$$4x = 720$$

$$\frac{4x}{4} = \frac{720}{4}$$

$$x = 180 \text{ miles}$$

69. Solve for x in  $\frac{24}{9} = \frac{32}{x}$ .

① simplify the left side by a factor of 3

$$\frac{8}{3} = \frac{32}{x}$$

② cross-multiply:  $8 \cdot x = 3 \cdot 32$

$$8x = 96$$

③ divide by 8:

$$8 \overline{) 96}$$

$$\begin{array}{r} 12 \\ -8 \\ \hline 16 \\ -16 \\ \hline 0 \end{array}$$

$$\frac{8x}{8} = \frac{96}{8}$$

$$x = 12$$

There are a number of techniques for #70 and #71. One technique is used for each.

70. Write 3.2% as a decimal.

- ① write as a fraction with 100 in denom. }  $\frac{3.2}{100} \cdot \frac{10}{10}$   
 ② multiply by 10/10 to clear the decimal }  $= \frac{32}{1,000}$   
 ③ now write as a decimal }  $= 0.032$

Solve each problem. Write a sentence answering the question.

71. Write 0.4 as a percent.

- Multiply 0.4 by 100%:  
 $0.4 \times 100\% = 40\%$   $(0.4 \times 100)\%$

72. At the Fireman's Pancake Breakfast, Zia can cook 18 pancakes in 4 minutes. How long will it take Zia to cook 90 pancakes?

Let  $x$  = number of minutes for 90 pancakes

Proportion:  $\frac{18}{4} = \frac{90}{x}$

Simplify left side }  $\frac{9}{2} = \frac{90}{x}$

Cross-multiply  $9 \cdot x = 2 \cdot 90$   
 $9x = 180$   
 $\frac{9x}{9} = \frac{180}{9}$   
 $x = 20$

	1 <sup>st</sup> set	2 <sup>nd</sup> set
pancakes	18	90
minutes	4	$x$

It will take Zia 20 minutes to cook 90 pancakes.

73. Jolanda has a coupon for a 20% discount at Sidewalk's Shoes. She found a pair of shoes that cost \$55.00. What will the new price be?

There are two approaches to finding discounts. Both involve multiplying by a percent and subtraction.


- ① multiply price by discount rate and subtract that value from the original price:

This is the \$ amount of the discount

$$\begin{array}{r} 55 \\ \times .20 \\ \hline 11.00 \end{array}$$

$$\begin{array}{r} 55.00 \\ - 11.00 \\ \hline 44.00 \end{array}$$

- ② subtract the discount rate, 20%, from 100% (which is 80%). Multiply the original price by 80%. This is the new, discounted price:

$$\begin{array}{r} 55 \\ \times .80 \\ \hline 44.00 \end{array}$$

Same →

The new price will be \$44.00.

74. Courtney is buying a computer printer that costs \$117.00. The sales tax rate in his area is 8.5%. How much will she pay at the cash register?

① Calculate the amount of tax by multiplying the price, \$117.00, by the sales tax rate, 8.5%, which is 0.085:

$$\begin{array}{r} 117 \\ \times .085 \\ \hline 585 \\ 9360 \\ \hline 9945 \end{array}$$

③ Add the rounded sales tax amount to the price:

$$\begin{array}{r} \$117.00 \\ + 9.95 \\ \hline 126.95 \end{array}$$

Courtney will pay \$126.95 at the cash register.

② Round this to the nearest penny: \$9.95

75. Calvin sells motor homes and receives a 2.5% commission on every motor home he sells. One day, he sold one for \$96,000. How much commission did Calvin earn on the sale of that motor home?

This is straight forward multiplication.

2.5% is 0.025:

$$\begin{array}{r} 96,000 \\ \times .025 \\ \hline 480000 \\ + 1920000 \\ \hline 2400.000 \end{array}$$

} three decimal places  
← three decimal places

Calvin earned \$2,400.00 commission on the sale of that motor home.