

➤ **Pathway:** Introduction to Family and Consumer Sciences Careers

➤ **Lesson:** FCS G2–2: Basic Arithmetic Skills

➤ **Common Core State Standards for Mathematics:** N.Q.3

Domain: Quantities

Cluster: Reason quantitatively and use units to solve problems.

Standard: 1. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*

➤ **Student Objective:** Use basic arithmetic skills and formulas (AP, Y%, EP, etc.) to calculate individual ingredient and total food product costs while choosing a level of accuracy for each calculation.

BACKGROUND KNOWLEDGE for Teachers and Students

➤ **Math Concepts:**

Arithmetic: Arithmetic is a branch of mathematics in which problems are solved by calculating with numbers, most often using a combination of addition, subtraction, multiplication, and division operations. Arithmetic skills are critical in such daily living activities as balancing a checking account, maintaining a household budget, and reducing or increasing the yield of a recipe, just to name a few. Although students have come to rely more and more on computers and calculators, they still must know how to frame the problems they are attempting to solve. The calculator works only with the numbers and operations that are input. The user must understand enough basic arithmetic to input the problems correctly in order to acquire correct answers. Students must understand the basic concepts of adding, subtracting, multiplying, and dividing before they can frame problems correctly.

Fraction: A fraction is a number that can be expressed in the form $\frac{a}{b}$. The numerator and the denominator must be whole numbers (not zero; 0). The numerator is the top number of a fraction, and the denominator is the bottom number of a fraction.

Irrational number: An irrational number cannot be written as a fraction, and a decimal does not repeat or have a pattern. An example of an irrational number is pi (π). Pi is the number 3.14159265358979323846264338327950288419716939937510582097494459230781640628.... An informative YouTube presentation on rational and irrational numbers is found at <http://www.youtube.com/watch?v=QloVPtbEUjw>.

Less than / more than: The left angle bracket is the mathematical symbol for less than. The right angle bracket is the mathematical symbol for more than.

Percent (%): Percent (%) is a ratio that represents per hundred. To write a decimal as a percentage, move the decimal point to the right two places, and follow the number with a percent sign.

Ratio: A ratio is a comparison of two quantities by division. Ratio can be written as 1:2, 1 to 2, or $\frac{1}{2}$.

Rational number: A rational number can be a ratio, fraction, whole number, mixed number, or decimal with an ending point or decimal with a pattern. An informative YouTube presentation on rational and irrational numbers is found at <http://www.youtube.com/watch?v=QloVPtbEUjw>.

Rounding prices for estimating: Rounding prices for estimating is a way to approximate costs. Round up 50 cents or more to the next dollar (e.g., \$3.62 becomes \$4.00). Round down by dropping off the cent value if it is below 50 cents (e.g., \$2.43 becomes \$2.00).

STEM skills: STEM skills are developed abilities in science, technology, engineering, and mathematics that require extensive knowledge of basic arithmetic skills. Opportunities for highly paid careers and good job security are strongly associated with STEM careers and the associated skills. STEM careers in such fields as nursing, dietetics, building trades, and education also require basic skills in arithmetic.

► Family and Consumer Sciences Concepts:

Family and Consumer Sciences uses basic arithmetic skills for finding the costs of recipes, increasing and decreasing recipes, and determining edible portions in the following Family and Consumer Sciences instructional programs:

- Food, Nutrition, and Wellness Studies
- Cooking and Related Culinary Arts
- Early Childhood Education and Teaching

- Facilities Planning and Management
- Work and Family Studies

As Purchased (AP): As Purchased (AP) is the cost of an item in its nonfabricated form. $AP \text{ Quantity} = \text{Edible Portion Quantity} \div \text{Yield Percent (Y\%)} \text{ in decimal form.}$

Cost per unit: Cost per unit is the price of one unit (volume, weight, count) and is calculated as $AP \div \text{Number of Units}$. For example: You buy a case of carrots for \$22.00. There are 50 pounds of carrots in a case. The cost for 1 pound is $AP \div \text{Number of Units}$ or $\$22.00 \div 50 \text{ pounds} = \$0.44 \text{ per pound of carrots (cost per unit)}$. A foodservice operator always rounds up regardless of the amount past the hundredths place. For example: If the cost per unit were \$12.322, the foodservice manager would round up to \$12.33.

Edible Portion (EP): Edible Portion (EP) is the part (portion, percentage) of the food that is eaten and excludes skin, bone, seeds, stems, trimmings, etc. Edible Yield Percent is that portion of the product that is usable versus As Purchased (AP). For example, the AP Cost of a case of oranges is \$42.00, and the EP Cost of that case of oranges (minus the skin, membrane, and seeds) is \$57.00. Identifying and calculating percentages is part of the FCS areas of foods, nutrition, textiles, interior design, money management, and others. In these math activities, percentage will be used to determine edible portions of foods.

Edible Portion Cost (EP Cost): Edible Portion Cost is the cost per unit of the fabricated food. The formula is $EP \text{ Cost} = AP \text{ Cost} \div \text{Yield Percent (Y\%)} \text{ in decimal form}$. You purchase a case of carrots for \$22.00, and there are 50 pounds of carrots in the case. The Y% for carrots is 80%. $EP \text{ Cost} = \$22.00 \div 0.80 = \27.50 . The EP Cost per pound is $\$27.50 \div 50 = \0.55 . Although the cost of a pound of carrots is \$0.44, the EP Cost per pound is \$0.55.

Edible Portion Quantity: Edible Portion Quantity is the weight, volume, or count of the fabricated food item. The formula is $\text{Edible Portion Quantity} = AP \text{ Quantity} \times \text{Yield Percent (Y\%)} \text{ in decimal form.}$

Equivalent conversions: Equivalent conversions are translations of numbers—for example, fractions to decimals to percent, etc. FCS programs calculate conversions for metric and English standard measurements of area, volume, weight (liquid and dry), length, distance, and temperature. Helpful websites for equivalents include Quizlet flashcards at <http://quizlet.com/14224403/culinary-conversions-culinary-equations-flash-cards/>; “Determining Portion Costs and Selling Prices” at http://www.kendallhunt.com/uploadedFiles/Kendall_Hunt/Content/Higher_Education/Uploads/McVety_Ch7_4e.pdf; volume to weight conversions at http://www.barryfarm.com/How_tos/how_many_cups_in_a_pound_of.htm; and USDA measurement equivalents at http://www.nal.usda.gov/fnic/foodcomp/Bulletins/measurement_equivalents.html.

Food costing: Food costing is the calculation of the total cost of producing a recipe. To complete the calculations, one must convert each ingredient to a ratio of equivalencies and include the percentage of edible amount. The unit cost is determined by dividing the total cost of the recipe by the number of units or servings the recipe produces.

Ratios and fractions: Ratios and fractions are used in many FCS career areas. Examples are food preparation uses of ratios for ingredients (e.g., 2 cups water to 1 cup sugar). When recipes are doubled, the ratio of ingredients is used to calculate the conversion. Specific food products use a ratio of liquid to dry ingredients. A ratio can also be expressed as a fraction. Fractions are used in measurements in the areas of food, nutrition, and other FCS content areas.

Trim: Trim is the weight or volume of the waste (seeds, stems, peel, etc.) from fabricating the purchased food item. $\text{Trim} = \text{AP Quantity} - \text{EP Quantity}$.

Unit cost: Unit cost is the price per ounce, pound, pint, quart, gallon, count, or other unit of weight or volume.

Yield: Yield is the amount of product a recipe or formula produces. It is often expressed in servings of a specific size. To change the yield of a recipe, one determines the ratio of the desired yield to the original yield, or the desired yield divided by the original yield. Calculating the Edible Portion (EP) and yield of a food item looks at the percentage of waste (trim).

Yield Percent (Y%): Yield Percent (Y%) is the percent of the Edible Portion (EP) of the As Purchased (AP) Quantity (weight, volume, or count). Y% is calculated as a measure of the factor by which an item changes because of trimming, draining, and/or cooking. Yield Percent is important because it tells us how much food to buy. AP is “as purchased,” the nonfabricated food item. EP is the “edible portion” of the fabricated food item. The formula to calculate Yield Percent is $\text{EP} \div \text{AP} = \text{Y\%}$. For example: You peel 25 pounds of medium-size carrots (AP) and end up with 20 pounds of edible carrots (EP). The EP is 20 pounds, and the AP is 25 pounds: $20 \div 25 = 0.80$, or 80%. If you peel an average-size carrot, that carrot loses about 20% of its weight; its Y% is 80% (0.80). However, if you cook 1 pound of dry oatmeal, the outcome is about 7 pounds of cooked oatmeal. The Y% of oatmeal is 697%. Y% is calculated to determine the amount of food to order, the recipe cost, and the maximum number of servings that a purchase will yield.

Guided Practice Exercises: ANSWER KEY

1. a.

TABLE 1a

Ingredient	Amount Needed	AP Quantity	AP Cost	Yield Percent	EP Quantity	EP Cost	Equivalent Conversion
Chocolate	8 oz	1 lb	\$8.50/lb	100%	8 oz	\$4.25	1 lb = 16 oz
Butter	1 c	1 lb	\$2.50/lb	100%	8 oz	\$1.25	1 c = 8 oz
Eggs	6 eggs, lg	1 doz	\$3.96/doz	100%	1/2 doz	\$1.98	1 doz = 12
Sugar, granulated	3/4 c	3 lb	\$4.50/3-lb bag	100%	3/4 c	\$0.50	1 lb = 2.25 c
Salt	1/4 t	1 lb	\$1.00/lb	100%	1/4 t	\$0.01	1 lb = 79.75 t
Walnuts in shell	1/2 c	5 lb	\$15.00/5-lb bag	60%	3 lb	\$0.63	1 lb shelled = 4 c
Total EP Recipe Cost	NA	NA	NA	NA	NA	\$8.62	NA

b.

TABLE 1b

Ingredient Amount Needed & AP Cost per Unit	AP Equivalent Conversion	Equivalent Conversion for Amount Needed	Calculation Process	EP Cost
Chocolate 8 oz \$8.50/lb	1 lb = 16 oz	8 oz = 1/2 lb	$\$8.50/\text{lb} \times 0.50 = \4.25	\$4.25
Butter 1 c \$2.50/lb	1 lb = 16 oz	1 c = 8 oz = 1/2 lb	$\$2.50/\text{lb} \times 0.50 = \1.25	\$1.25
Eggs 6 eggs, lg \$3.96/doz	1 doz = 12	6 = 1/2 doz	$\$3.96 \times 0.50 = \1.98	\$1.98
Sugar, granulated 3/4 c \$4.50/3-lb bag	2 1/4 c = 1 lb	3/4 c = 0.75 c	<ul style="list-style-type: none"> • $3 \text{ lb} \times 2.25 \text{ c} = 6.75 \text{ c per bag}$ • $\\$4.50 \div 6.75 \text{ c} = \\$0.666/\text{cup}$ • $\\$0.67 \text{ per cup (rounded)}$ • $\\$0.67 \times 0.75 = \\0.5025 • Rounded to \$0.50 	\$0.50
Salt 1/4 t \$1.00/lb	1 lb = 79.75 t	1 lb = 16 oz	<ul style="list-style-type: none"> • $\\$1.00 \div 79.75 \text{ t} = \\$0.012539185/\text{t}$ • $\\$0.01 \text{ per t salt (rounded)}$ • 1/4 t salt = <\$0.01 	\$0.01

Ingredient Amount Needed & AP Cost per Unit	AP Equivalent Conversion	Equivalent Conversion for Amount Needed	Calculation Process	EP Cost
Walnuts in shell $\frac{1}{2}$ c \$15.00/5 lb	1 lb shelled walnuts = 4 c	5 lb walnuts in shell \times 60% = shelled walnuts	<ul style="list-style-type: none"> 5 lb walnuts in shell \times 0.60 Y% = 3 lb shelled walnuts 3 lb shelled \times 4 c/lb = 12 c \$15.00 \div 12 c = \$1.25/c shelled walnuts \$1.25 \times 0.50 = \$0.625/$\frac{1}{2}$ c \$0.63 (rounded up) 	\$0.63

c. It is a rational number because the decimal repeats the number 6. An irrational number is an infinite nonrepeating decimal.

d. The price \$0.666 is rounded to \$0.67.

e. 1 cake = 8 servings

$$\$8.62 \div 8 = \$1.0775 \text{ per serving}$$

$$\text{Rounded estimated cost} = \$1.00$$

$$\text{Rounded to actual cost/serving} = \$1.08$$

2. EP Quantity = 10 lb – 2.6 lb

$$\text{EP Quantity} = 7.4 \text{ lb}$$

$$Y\% = 7.4 \text{ lb} \div 10 \text{ lb}$$

$$Y\% = 0.74$$

$$Y\% = 74\%$$

Independent Practice Exercises: ANSWER KEY

1.

Table 1a

Ingredient	Amount Needed	AP Quantity	AP Cost	Yield Percent	EP Quantity	EP Cost	Unit Cost	Equivalent Conversion
Chocolate	2 oz	1 lb	\$8.80/lb	100%	$\frac{1}{8}$ lb	\$1.10	\$0.55/oz or sq	1 lb = 16 oz
Butter	$\frac{1}{2}$ c	1 lb	\$2.44/lb	100%	$\frac{1}{4}$ lb	\$0.61	\$0.61/stick or $\frac{1}{2}$ c	1 lb = 2 c
Eggs	2 eggs, lg	1 doz	\$3.96/doz	100%	$\frac{1}{6}$ doz	\$0.66	\$0.33/egg	1 doz = 12
Sugar, granulated	1 c	4 lb	\$4.50/4-lb bag	100%	$\frac{1}{9}$ bag	\$0.50	\$0.07/oz	1 lb = $2\frac{1}{4}$ c
Pie shell	1 shell	2/pkg	\$3.00/pkg	100%	$\frac{1}{2}$ pkg	\$1.50	\$1.50/shell	NA
Total EP Recipe Cost	NA	NA	NA	NA	NA	\$4.37	NA	NA

b.

Ingredient	Calculation Process	EP Amount
Chocolate	<ul style="list-style-type: none"> 1 sq = 1 oz chocolate 2 sq = 2 oz, or $\frac{1}{8}$ lb 	$\frac{1}{8}$ lb
Butter	<ul style="list-style-type: none"> 1 lb = 4 sticks butter $\frac{1}{2}$ c = 1 stick 1 stick = $\frac{1}{4}$ lb 	$\frac{1}{4}$ lb
Eggs	<ul style="list-style-type: none"> 12 eggs = 1 doz 2 eggs = $\frac{1}{6}$ doz 	$\frac{1}{6}$ doz
Sugar, granulated	<ul style="list-style-type: none"> 1 lb = $2\frac{1}{4}$ c sugar, granulated 4 lb = 9 c 1 c = $\frac{1}{9}$ bag 	$\frac{1}{9}$ bag
Pie shell	<ul style="list-style-type: none"> 1 pkg = 2 shells 1 shell = $\frac{1}{2}$ pkg 	$\frac{1}{2}$ pkg

c.

Ingredient	Calculation Process	EP Cost
Chocolate	$\$8.80/\text{lb} \times \frac{1}{8} = \1.10	\$1.10
Butter	<ul style="list-style-type: none"> • $\\$2.44/\text{lb} \div 4 \text{ sticks} = \\0.61 • $\frac{1}{4} \text{ lb} = \\0.61 	\$0.61
Eggs	<ul style="list-style-type: none"> • $\\$3.96/\text{doz} \div 12 \text{ eggs} = \\$0.33/\text{egg}$ • $\\$0.33/\text{egg} \times 2 = \\0.66 	\$0.66
Sugar, granulated	<ul style="list-style-type: none"> • $4 \text{ lb} \times 2\frac{1}{4} \text{ c/lb} = 1 \text{ c}$ • $2\frac{1}{4} \text{ c} = \frac{9}{4}$ • $4 \text{ lb} \times \frac{9}{4} = \frac{36}{4} = 9 \text{ c}/4\text{-lb bag}$ • $1 \text{ c} = \frac{1}{9} \text{ bag}$ • $\\$4.50 \text{ lb} \times \frac{1}{9} = \\0.50 	\$0.50
Pie shell	<ul style="list-style-type: none"> • $1 \text{ pkg} = \\$3.00$ • $1 \text{ pkg} = 2 \text{ shells}$ • $\\$3.00/\text{pkg} \times \frac{1}{2} = \\1.50 	\$1.50

d.

Ingredient	Calculation Process	Unit Cost
Chocolate	• $\$8.80 \div 16 = \$0.55/\text{oz or sq}$	\$0.55/oz
Butter	<ul style="list-style-type: none"> • $1 \text{ lb} = 4 \text{ sticks}$ • $1 \text{ stick} = \frac{1}{2} \text{ c}$ • $\\$2.44 \div 4 = \\$0.61/\text{stick or } \frac{1}{2} \text{ c}$ 	$\$0.61/\frac{1}{2} \text{ c}$
Eggs	• $\$3.96 \div 12 = \$0.33/\text{egg}$	\$0.33/egg
Sugar, granulated	<ul style="list-style-type: none"> • $\\$4.50/4\text{-lb bag}$ • $4 \text{ lb} = 64 \text{ oz}$ • $\\$4.50 \div 64 = \\$0.0703125/\text{oz, or } \\$0.07/\text{oz (rounded)}$ 	\$0.07/oz
Pie shell	<ul style="list-style-type: none"> • $\\$3.00 \text{ per } 2 \text{ shells}$ • $\\$3.00 \div 2 = \\$1.50/\text{shell}$ 	\$1.50/shell

e.

Ingredient	Equivalent Conversion
Chocolate	1 lb = 16 oz
Butter	1 lb = 4 sticks ($\frac{1}{2}$ c/stick)
Eggs	1 doz = 12
Sugar, granulated	1 lb = 16 oz
Pie shell	No conversion required

2. EP Quantity = $20 \text{ lb} \times 0.74$

EP Quantity = 14.8 lb

3. AP Quantity = $2 \text{ lb} \div 0.74$

AP Quantity = 2.7027027 lb (rounded to 2.70 lb)

Guided Practice Exercises:

- Use the following cake recipe to complete a Food Costing table and an Edible Portion Cost table. (KEY: c = cup, t = teaspoon, oz = ounces, lg = large, lb = pound, doz = dozen.)

Flourless Chocolate Cake

YIELD: 8 servings

INGREDIENTS:

8 oz baking chocolate (8 squares)
 1 c butter
 6 eggs, large
 $\frac{3}{4}$ c sugar, granulated
 $\frac{1}{4}$ t salt
 $\frac{1}{2}$ c water

TOPPING:

$\frac{1}{2}$ c walnuts

EQUIVALENT CONVERSIONS:

1 lb butter = 2 c
 1 lb sugar, granulated = $2\frac{1}{4}$ c
 1 lb salt = 79.75 t
 4 c walnuts, shelled* = 1 lb

*Yield percent of walnuts in the shell is 60% because the shells are not edible.

- Complete the table by filling in the Amount Needed column from the Flourless Chocolate Cake recipe above and then calculating and recording Yield Percent, EP Quantity, EP Cost, Equivalent Conversion, and Total EP Recipe Cost in the appropriate rows and columns. Round up or down as needed. As a rule of thumb, add 1 cent to the EP Cost for an ingredient when the actual cost is less than 1 cent.

Yield Percent Formula: $\text{EP Amount} \div \text{AP Quantity} = \text{Y\%}$

Edible Portion Cost Formula: $\text{AP Quantity} \div \text{Yield Percent (Y\% in decimal form)} = \text{EP Cost}$

Edible Portion Quantity Formula: $\text{AP Quantity} \times \text{Yield Percent (Y\% in decimal form)} = \text{EP Quantity}$

TABLE 1a

Ingredient	Amount Needed	AP Quantity	AP Cost	Yield Percent	EP Quantity	EP Cost	Equivalent Conversion
Chocolate		1 lb	\$8.50/lb				
Butter		1 lb	\$2.50/lb				
Eggs		1 doz	\$3.96/doz				
Sugar, granulated		3 lb	\$4.50/3-lb bag				
Salt		1 lb	\$1.00/lb				
Walnuts in shell		5 lb	\$15.00/5-lb bag				
Total EP Recipe Cost		NA	NA	NA	NA		NA

- b. Calculate the Edible Portion (EP) Cost for each ingredient. Copy the Amount Needed and the AP Cost per unit of each ingredient from Table 1a into the far left column of Table 1b below. Use the Y% figure from the Table 1a for your calculations. Then, calculate and record the Equivalent Conversion for Amount Needed, Calculation Process (show your work step by step), and EP Cost. Round all numbers. As a rule of thumb, add 1 cent to the EP Cost for any ingredient when the actual cost is less than 1 cent.

Edible Portion Cost Formula: $AP\ Cost \div Yield\ Percent\ (Y\%) \text{ in decimal form} = EP\ Cost$

TABLE 1b

Ingredient Amount Needed & AP Cost per Unit	AP Equivalent Conversion	Equivalent Conversion for Amount Needed	Calculation Process	EP Cost
Chocolate	1 lb = 16 oz			

Ingredient Amount Needed & AP Cost per Unit	AP Equivalent Conversion	Equivalent Conversion for Amount Needed	Calculation Process	EP Cost
Butter	1 lb = 16 oz			
Eggs	1 doz = 12			
Sugar, granulated	$2\frac{1}{4}$ c = 1 lb			
Salt	1 lb = 79.75 t			
Walnuts in shell	1 lb shelled walnuts = 4 c			

c. What makes \$0.66666 a rational number?

- d. Round the price \$0.666.
- e. The Flourless Chocolate Cake yields 8 servings. What is the rounded estimated cost per serving? What is the rounded actual cost per serving? Show your work.
2. You peel 10 pounds of apples for apple pie. After peeling, coring, and slicing, you end up with 2.6 pounds of trim. What is the Y% of the apples you purchased?
- Trim Formula = AP Quantity – EP Quantity = Trim
- Yield Percent Formula: EP Amount ÷ AP Quantity = Y%

Independent Practice Exercises:

- Use the following pie recipe to complete a Food Costing table and an Edible Portion Cost table. (KEY: c = cup, oz = ounces, lg = large, lb = pound, doz = dozen, pkg = package, sq = square)

Fudge Pie

YIELD: 6 to 8 servings

INGREDIENTS:

- 2 oz chocolate (2 squares)
- $\frac{1}{2}$ c butter (1 stick)
- 2 eggs, large, beaten
- 1 c sugar, granulated
- 1 unbaked pie shell (9-inch)

EQUIVALENT CONVERSIONS:

- 1 lb butter = 2 c or 4 sticks ($\frac{1}{2}$ c per stick)
 - 1 lb sugar, granulated = $2\frac{1}{4}$ c
-

- Complete the table by filling in the Amount Needed column from the Fudge Pie recipe above and then calculating and recording Yield Percent, EP Quantity, EP Cost, Unit Cost, Equivalent Conversion, and Total EP Recipe Cost in the appropriate rows and columns. Round up or down as needed. As a rule of thumb, add 1 cent to the EP Cost for an ingredient when the actual cost is less than 1 cent.

Yield Percent Formula: $\text{EP Amount} \div \text{AP Quantity} = \text{Y\%}$

Edible Portion Cost Formula: $\text{AP Quantity} \div \text{Yield Percent (Y\% in decimal form)} = \text{EP Cost}$

Edible Portion Quantity Formula: $\text{AP Quantity} \times \text{Yield Percent (Y\% in decimal form)} = \text{EP Quantity}$

Table 1a

Ingredient	Amount Needed	AP Quantity	AP Cost	Yield Percent	EP Quantity	EP Cost	Unit Cost	Equivalent Conversion
Chocolate		1 lb	\$8.80/lb					
Butter		1 lb	\$2.44/lb					
Eggs		1 doz	\$3.96/doz					
Sugar, granulated		4 lb	\$4.50/4-lb bag					
Pie shell		2/pkg	\$3.00/pkg					
Total EP Recipe Cost	NA	NA	NA	NA	NA		NA	NA

b. Calculate the EP Amount for each Fudge Pie ingredient.

Ingredient	Calculation Process	EP Amount
Chocolate		
Butter		
Eggs		
Sugar, granulated		
Pie shell		

c. Calculate the EP Cost for each Fudge Pie ingredient.

Ingredient	Calculation Process	EP Cost
Chocolate		
Butter		
Eggs		
Sugar, granulated		
Pie shell		

d. Calculate the Unit Cost for each Fudge Pie ingredient.

Ingredient	Calculation Process	Unit Cost
Chocolate		
Butter		

Ingredient	Calculation Process	Unit Cost
Eggs		
Sugar, granulated		
Pie shell		

- e. Identify the equivalent conversions needed to obtain the amounts needed in the Fudge Pie recipe.

Ingredient	Equivalent Conversion
Chocolate	
Butter	
Eggs	
Sugar, granulated	
Pie shell	

2. You purchase 20 pounds of apples for Apple Crisp. The Apple Crisp recipe says to peel, core, and slice the apples. The Y% of apples is 74%. How many pounds of apples are left after you peel, core, and slice the 20 pounds of apples you purchased?

Edible Portion Quantity Formula: $AP \text{ Quantity} \times \text{Yield Percent (Y\% in decimal form)} = EP \text{ Quantity}$

3. Another Apple Crisp recipe calls for 2 pounds of peeled, cored, and sliced apples (2 pounds of apples peeled, cored, and sliced is different from 2 pounds of apples, peeled, cored, and sliced). How many pounds of apples must be purchased to make this Apple Crisp recipe? The Y% of apples is 74%.

AP Quantity = EP Quantity \div Y% in decimal form