

Access-orizing ratio and percentage with the unitary method

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Bar Model or Tape Diagram

A drawing that looks like a segment of tape, used to illustrate number relationships. Also known as a *strip diagram*, *bar model*, *fraction strip*, or *length model*.

Common Core Math Standards Focus:

CCSS.MATH.CONTENT.6.RP.A.3: Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about ... equivalent ratios, tape diagrams... or equations.

CCSS.MATH.CONTENT.6.RP.A.3.C: ...solve problems involving finding the whole, given a part and the percent.

CCSS.MATH.CONTENT.7.RP.A.3: ...solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Part – Whole Models:

A wading pool is half filled with water. When ____ more gallons of water are added, the pool is $\frac{7}{8}$ full. How many gallons of water can the wading pool hold?

Tyrone bought a bag of marbles. $\frac{1}{4}$ of the marbles were blue, $\frac{1}{8}$ were green and $\frac{1}{5}$ of the remainder were yellow. If there were 24 yellow marbles, how many marbles did he buy?

Comparison Models:

Adam and Carly have 67 baseball cards altogether.

If Adam has 19 more baseball cards than Carly, how many baseball cards does Adam have?

117 children took part in a track meet.

$\frac{2}{7}$ of the number of girls that participated is equal to $\frac{1}{3}$ the number of boys. How many girls took part in the track meet?

Ratio Models:

The ratio of the number of red and blue cars is 4 : 5. If there are 30 blue cars, how many red cars are there?

Cody and Pedro share money in the ratio of 3 : 4. Cody has \$120. How much money does Pedro have?

The sides of a triangle are in the ratio 4:5:6. If the perimeter of the triangle is 60 cm, find the length of the shortest side.

A string is cut into three pieces in the ratio of 5:4:3. If the longest piece of string is 24 cm longer than the shortest piece of string, what is the total length of the string before it was cut?

Ramli and Tim had the same amount of money at first. After Ramli spent \$10 and Tim spent \$6.50, the ratio of Ramli's money to Tim's money was 3 : 4. How much money did they each have at first?

A 42-ounce mix of nuts is 6 parts peanuts to 1 part cashews. How many ounces of cashews must be added to make the mixture 2 parts cashews to 1 part peanuts?

Percentage Models:

There were 200 people at the movie. 28% of them were children and the rest were adults. How many children were at the movie?

Colin bought an iPad, which cost \$324 including 6 % sales tax. How much was the cost of the iPad?

Rick spent 20% of his monthly salary on rent, 25% of the rest on food and saved the rest. If he saved \$600 each month, how much was his monthly income?

Andy, Ben and Sally share a sum of money. 40% of Andy's money is equal to 25% of Ben's money. Sally has $\frac{1}{3}$ as much money as Ben. If Andy gives 20% of his money to Sally, she will have \$132. How much money does Andy have?