Contents

Identify the Operation

When solving word problems, always read the problem carefully, and imagine in your mind what is happening. You can also draw or act out the situation to help you!

Ask yourself what the problem is asking for. Then, think about what math operation(s) match the situation. Here are some tips:

- **If you are finding the total amount of something**: multiplication or addition
- **If you know the total, or what the total used to be**: subtraction or division
- **If there are no equal-sized groups**: addition or subtraction
- **If there are equal-sized groups**: multiplication or division

These tips won't answer every scenario! So don't blindly choose an operation. Also, many word problems require several operations.

Example. Brian divided three pizzas into ninths. How many slices did he end up with?

The problem includes the word "divided". Is it about division? Imagine 3 pizzas in your mind, cut into ninths. This is a question about three equal-sized "groups" (pizzas), with 9 in each "group". To find the total number of slices, we *multiply*, not divide: $3 \times 9 = 27$. Brian got 27 slices.

1. Circle the equation(s) that match(es) the problem. Solve.

a. Randy buys a bicycle for $123. Now he has $94 left. How much did he have before?

$123 + 94 = \_\_\_\_$ | $94 + \_\_\_\_ = 123$

$\_\_\_\_\_ - 123 = 94$ | $123 - \_\_\_\_\_ = 94$

b. Priscilla pays $48 for eight mugs. How much was each mug?

$48 - 8 - 8 = M$ | $48 + 8 = M$

$6 \times M = 48$ | $48 \div 8 = M$

c. Scarlet buys a $23 shirt and six snack bars for a total of $41. How much did each snack bar cost?

$41 - 23 - 6 = x$ | $23 + 6 \times 41 = x$

$6 \times S + 23 = 41$ | $(41 - 23) \div 6 = S$

2. Solve. On the empty line, write a calculation or several for the problem.

a. Amy added three numbers and got a sum of 730. Two of the numbers were 260 and 128. What was the third number?

_____

The third number was _____.

b. David drove from Dallas to Houston, a distance of 239 miles, and back, twice in a month. How far did he drive?

_____

He drove _____ miles.

c. Elaine is making a quadruple batch of apple crisp for a party. Her recipe calls for nine apples. How many does she need?

_____

Elaine needs _____ apples.

d. Fiona is 131 cm tall and her little sister is 119 cm tall. What is the difference in their heights?

_____

Their heights are _____cm apart.

e. Denise went shopping with $500 and came home with $249. How much did she spend?

_____

Denise spent _____.

f. There are a bunch of bikes and seven trikes in front of a daycare place. In total, those have 41 wheels. How many bikes are there?

_____

There are _____ bikes.

Multiplication in Word Problems

1. Write an equation with an unknown for each word problem, and then solve.

Problem:	Equation
a. One tricycle has three wheels, so ____ tricycles have 60 wheels.	$3 \times y = 60$ $y =$ _____
b. How many times more expensive is the jacket that costs $108 than one that costs $27?	
c. How many donkeys are there in a field if there are 52 feet?	
d. It costs $3,349 to buy 550 feet of fencing. How much fencing would three times that much money buy?	
e. A farmer is selling his sheep at $3 per pound. What is the total price for a young ewe that weighs 121 pounds *and* her 48-lb lamb?	
f. Phil earns $30 an hour. How much would he earn per week if he works 8 hours a day and 5 days a week?	

2. Solve.

During one week, an otter ate 48 oysters each day, for most of the days. But on the first day, it ate three more than that, and on the next to last day of the week, it ate six less than that. How many oysters did it eat that week?

3. Solve.

a. A tuft of grass in Africa grows 26 inches tall before being eaten by an antelope, after which it is three inches tall. It re-grows fully before being re-eaten by a zebra so it is three inches tall again. After this happens three more times, how much will the grass have grown and re-grown in total?

b. Martha buys a 9 × 17 ft shag rug with a zebra pattern to go in the living room, which measures 16 × 21 feet. How much of the living room floor is *not* carpeted, in square feet?

c. A store used to sell a certain blueberry-flavored energy bar for $3.50. At that price, they sold about 10 bars per day. Then they raised the price by one dollar, and the amount of sales dropped down to seven per day. In which scenario does the store take in more money?

4. Solve the mystery numbers! (All mystery numbers are less than 100.)

a. I am between 30 and 60. The number one more than me is in the table of seven. The number one less than me is in the table of nine.

I am _____.

b. The quotient of my digits is 3. I am divisible by 3, but I am over 36 and not in the standard multiplication table.

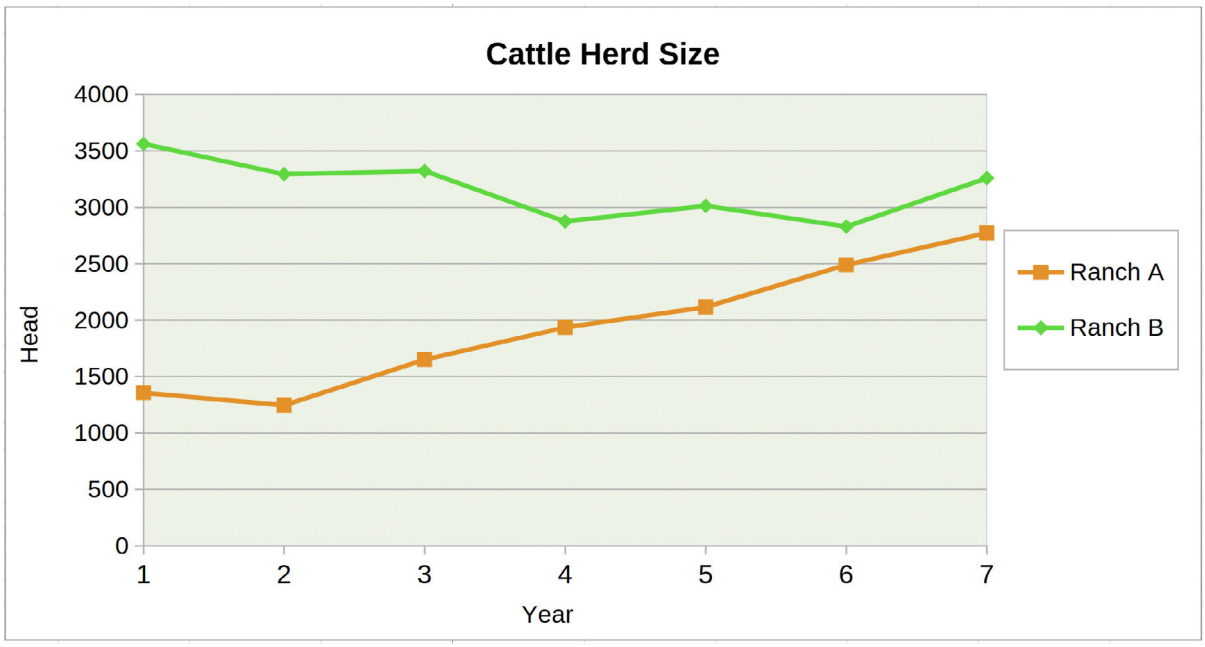
I am _____.

c. I'm in the tables of seven and five, and the sum of my digits is more than the product of my digits.

I am _____.

Mixed Word Problems 2

1. The line graph depicts the head of cattle per year at two different ranches.



a. *About* how many more cattle did Ranch B have than Ranch A on the 4th year?

b. At what point was the amount of cattle at Ranch A double what it had been at its lowest?

c. When was the difference between the cattle on Ranch B and on Ranch A the greatest?

2. Tim and Bill are flying drones. Tim's drone is at 1,525 feet and Bill's drone is at 1,342 feet. During the next four minutes, the drones' heights are recorded as changing like this (in feet):

Tim's drone: −35, −65, +3, −21
Bill's drone: −32, +54, +64, +46

At what point(s) were the drones at the same height?

3. Solve.

a. Which watermelon costs less: a 16-pound watermelon priced at 12 cents a pound, or a 14-pound watermelon from a different market, priced at 14 cents a pound?

b. Kayla is running a 5-kilometer path in a forest. After every 800 meters, she takes a break and walks for 100 meters for 1 minute before running again. By the time she's finished the path, what distance will she have actually been *running*?

c. Oskar has $342 and wants to buy a camera that costs $1559. He earns $140 a day five days a week, but also spends $485 a week on various expenses. How long will it be before he can buy the camera?

Division Warm-Up

1. Write an equation for each situation. It might not always be division! Sometimes, several different equations can work. Then write what thing (what fact) you find out by your calculation.

Problem:	Equation:
a. A herd of deer has a total of 36 legs. *There are nine deer.*	36 ÷ 4 = _____
b. Carlos divides each of the four apples into fourths. _____	
c. Sixty apples were packaged into 12 bags. _____	
d. Lee buys $20 worth of pineapples that cost $4 each. _____	
e. Hank the Great Dane knocks 13 of the 246 books off the bookcase. _____	
f. You buy four shirts for $5.50 each. _____	
g. Eight notebooks costs $24. _____	
h. 200 pencils are packaged evenly into four boxes. _____	
i. Jerry, Jason, and James share 12 squares of chocolate evenly. _____	

2. Find which calculation solves the problem. Then solve.

Pizzas cost $14 each. Six friends share the cost of three pizzas equally. How much did each pay?

$6 \div 3 \times 14 = x$	$x = 6 \times 14 \div 3$	$3 \times 14 \div 6 = x$

3. Solve. Watch out for the remainders!

a. Randy packages 100 apples into bags of 12 each.
How many full bags does he get?

How many apples are left?

b. Tamra takes on average four minutes to respond to each customer e-mail. She starts answering emails at 9:08 AM and finishes at 11:21 AM. About how many e-mails did she answer? (Round.)

c. The granola at Bianca's health food store usually costs $24, but it went over the expiration date, so she's selling it at 2/3 of its original price. What is it discounted by?

d. How long does a 50-pound bag of food last if a flock of 16 ducks eats four pounds a day? (The remainder does not count as a "day".)

e. Of the tomato seeds Milo sowed, 29 sprouted. How many rows of tomato plants will he get if he puts seven plants in a row?

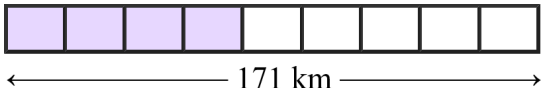
And how many plants are in an incomplete row?

What about if he used rows of six?

Fractions and Division

Example. The Andrews family drives 171 km to the beach. When they're 4/9 of the way there, they stop for ice cream. How much farther do they have to go?

The fraction 4/9 indicates that this total of 171 km is divided into **9 parts** and that the family has driven **four** of those parts:



To start, we can use long division to find what is 1/9 of 171. (Then, what is the next step?)

1. Solve.

a. Finish solving the problem in the example above.

b. On the way back, the Andrews family stops for gas 60 km from home. *About* what fraction of the way home are they? Use a rounded number and estimate.

c. Of the 12 birds Randy sees, three are robins, and a third are finches.

What fraction of the birds were robins?

How many finches were there?

How many birds were NOT robins or finches?

d. A cheesecake weighs 850 g. It is cut into ten slices. How much do three slices of it weigh?

2. Solve.

a. Lily bought a smoothie for $12.60 and a cheaper smoothie which cost 1/3 as much. What was her total cost?

b. Fletcher sawed off one-fourth of a 16-foot plank of wood. Then, he sawed the *rest* of the plank of wood into three equal pieces. How long is the first piece he sawed off?

What about each of the other three pieces?

c. Emma starts a lemonade stand, selling lemonade at $2 per cup. She sells 52 cups the first day, and then spends 1/5 of the money buying more lemons and sugar for the next day. How much money does she have left after that?

d. There are 2 hours and 20 minutes left before Susan eats supper. From now until supper, Susan spends 5/7 of her time working, and then plays a game the rest of the time. How much more time did she spend working than playing, in minutes?

Decimals

1. Solve.

a. Which is shorter: 1.5 feet or 1 foot 7 inches?

b. A playground measures 18.2 meters by 21.5 meters (length and width). What is its perimeter?

c. Gerald buys three chocolate bars for $5.29 each and pays with $20. What is his change?

d. Bridget walked to the grocery store and back, a total of 1,400 meters. Philippa went for a 2.4-kilometer walk for exercise. Who walked more, and how many more meters?

e. Which one has a larger perimeter: a 5.74 m by 2.8 m rectangle OR a square with 4.3-meter sides? How much larger?

f. A squirrel is moving a stash of nuts from one tree to another. The trees are 18.6 meters apart. The squirrel has made two trips between the trees so far (one round trip). How many more trips will it make before it has run 100 meters in total?

2. Solve.

a. Aurora spends the morning tending her garden and harvesting vegetables. At home, she weighed what she had picked: 0.85 lb radishes, 0.62 lb greens, 5.2 lb pumpkins, and 3.9 lb tomatoes. What is the total weight of her vegetables?

b. Daniel lives 0.6 miles from the nearest grocery store. Harold has to travel 1/2 mile to reach the same store.

Who has to go farther? How much farther?

Let's say they both bicycle to the grocery store and back every Tuesday and every Friday. What is the total distance each one of them bicycles on these trips?

c. A bread recipe for one loaf calls for 400 grams of flour. Tammy weighs the flour she has left in the bag, and gets 1.82 kg. How many loaves of bread can she make with that amount of flour?

d. Twin lambs weigh 8.6 pounds and 7.8 pounds. If they each gain 5.2 pounds a week for three weeks, what will be their *combined* weight at that time?

Puzzle Corner

There were 1.5 gallons of ice cream in the freezer. Then Dad ate some at lunch and supper, and Kirsten and Monica each ate 1.5 cups at both meals. Now there is 1 gallon left. How much did Dad eat?

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