

Bringing Maths to Life (Levels 1-2)

Read the questions below carefully and see if you can use your mathematical skills to solve the problems all the way to Level 3. If you're struggling to solve the problem, the tip might be able to help you.

Question	Tip	Answer
There were eight scientists working on the research for the lake. In the end, each of them wrote nine pages for the final research paper. How many pages was their research paper?	Each of the 8 scientists wrote 9 pages, so we can multiply 8 times 9 to figure out how long the research paper was.	
The lake is shaped like a rectangle, 4 km long and 3 km wide. What is the perimeter of the lake?	Perimeter is the measure of the outside of a shape. A rectangle is a shape with opposite sides equal and all angles as right angles. If opposite sides are equal, then the lake has sides of length 3, 4, 3, and 4. Add these together for the perimeter!	
If 2000 people went out to vote to re-elect the politicians, and 1,500 of them were misinformed by the Media, what percentage of the voters were misinformed?	Take the number that were misinformed and divide by the number of voters in total. This will give a decimal, then change the decimal into a percentage.	
In the Scientists research study, the Lake normally has 9,000 fish in it, but in their study they found only 7,000. What is the percentage decrease the Lake is experiencing with just 7,000 fish?	Percent change can be calculated by taking the original number (9,000) and subtracting the new number (7,000) first, then dividing the answer by the original number (9,000).	
If the Company pays its 50 hourly employees \$27.50 per hour. If each employee worked 40 hours in a week, how much do the employees earn in that work?	Multiply the hours worked times the rate per hour to see how much one employee makes in a week. Then multiply that by the number of employees.	
If 30% of the the population believe the lake is in great health and 2,400 voters believe it is nearly dead, how many voters are there in total?	30% of the total population is 2,400. To figure out how large the whole population is, we divide 2,400 by 30%.	

Bringing Maths to Life (Levels 3-5)

Read the questions below carefully and see if you can use your mathematical skills to solve the problems all the way to Level 3.

If you're struggling to solve the problem, the tip might be able to help you.

Question	Tip	Answer
In the past year that had 365 days, the lake received the same amount of pollution each day. If the Lake absorbed 7,200 gallons of pollution this year, how much was put in each day? Round to the nearest hundredth.	When faced with a problem that involves distributing a total amount evenly over a period, divide the total amount by the number of units in that period. This is a basic principle of average or rate calculation. In this case we divide the total amount of pollution absorbed by the lake in the year by the number of days in that year.	
A function to describe how much more contaminant the Lake can take before it "dies" can be described by $y = -2.5x + 10,000$ where y is how much more contaminant the Lake can take in gallons and x is the number of days that the Company is polluting. If the lake can take 2,050 more gallons, how many days has the company been polluting?	When working with linear equations, it's crucial to correctly interpret the variables and coefficients. Here, understanding that y represents the remaining capacity of the lake and not the amount already polluted, we plug 2,050 in for y and solve for x .	
When healthy, the lake holds 25,500 fish. If the lake holds 50,000 cubic meters of water, how many fish are there on average per cubic meter when the lake is healthy?	To solve this problem, we need to calculate the average number of fish per cubic meter of water in the lake. This can be done by dividing the total number of fish in the lake by the total volume of water in the lake.	
The lake is roughly a regular hexagon in shape. If one side of the hexagon is 6km, what is the area of the lake?	Since a regular hexagon can be broken into 6 equilateral triangles, find the area of one equilateral triangle with side length 6 and then multiply that area times 6.	
If each politician has a 50% chance of acting against the corporation, and there are 3 politicians, what is the probability that at least a 2 will act against the corporation?	Since there is an equal chance of each action by the politicians, you can list all possible combinations of how the politicians will act (for or against). Then count the number of outcomes where more than 2 politicians are against and use that as the numerator over the denominator which is the total number of possible outcomes. Alternatively, when dealing with problems that require calculating the probability of multiple independent events happening (like multiple politicians making a decision), consider using the binomial probability formula.	

