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
The Hiker has many items in their backpack. A sleeping bag which weighs 1 kg, a tent weighing 3 kg, water weighing 4 kg, 3kg of food, and other items weighing 5kg. After the first day, the Hiker ate 1kg of food and 1 kg of water. how much does their backpack weigh after the first day?	Add up everything in the Hikers pack to start, then subtract the weight of the consumed food and water from the total weight of the backpack's contents to find the new weight.	
If the Tracker hiked 12 miles per day when they were tracking the Fox, how many miles did they hike over the 6 weeks they were tracking the Fox?	Multiply the daily hiking distance by the total number of days in six weeks.	
The Hiker had a plan to hike 20.2 kilometers the day they found the Fox's fur. To stop by the Park Ranger's office, they needed to take a different trail that added 2.15 kilometers to get to the Park Ranger's office and then 2.15 kilometers back to the main trail. How far did the Hiker hike that day?	Add the original planned distance to twice the additional distance for the detour to the Park Ranger's office.	
One hypothesis for why the Fox was so elusive is that it (unlike most foxes) hibernates in the winter. If the hypothesis is that the Fox spends 56 days out of the 365 days of the year hibernating, what percent of the time is the Fox out in the forest?	Calculate the percentage of the year the Fox is not hibernating by subtracting the hibernation days from 365 days and then dividing by 365, finally multiply by 100 and add a percent sign.	
The park where the Fox was found is an area of land composed of two rectangles and a triangle. The first rectangle is 5 km by 6km. The second rectangle is 7 km by 8 km and the triangle has a hight of 8 km and a base of 8 km. What is the total area of the park?	Find the area of each rectangle (length times width) and the triangle (the base times the height divided by 2) separately, then sum these areas to get the total area of the park.	
After the first sighting, the National Park Service wanted to know how many other blue foxes were in the park. They placed 65 solar powered cameras around the park to try to capture them on film. If each camera cost $75 and $50 to set up, how much was invested on the cameras and setup in total?	Multiply the cost of one camera plus setup by the total number of cameras to find the total investment.	

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 a small study on who deserved the most credit for finding the Fox, 8 people said the Hiker, 5 people said the Park Ranger, 5 people said the Tracker, and 6 people said the Farmer. What is the probability that a random person selected from the study did not select the Hiker?	Calculate the probability by dividing the number of people who did not choose the Hiker by the total number of people in the study.	
If there are currently 50 blue foxes in the wild and the usual size of a litter is 6. Assuming every fox found a mate at the exact same time , how many foxes would there be after all mating pairs had litters?	Multiply the number of current foxes by the average litter size and add this to the original population to find the new total.	
The Tracker has a great story to tell of their epic six week tracking of the Fox. Two magazines want to tell that story. The first offers a flat $10,000 fee for the story. The second offers $2,500 and $3 per magazine sale. How many sales would the second magazine need to sell to have the payout to the Tracker equal the first magazines offer?	The difference between the two offers lump sum payment is $10,000 - $2,500 = $7,500. Next we see how many people need to buy magazines to cover the $7,500 difference by dividing that difference by $3.	
Write an equation for the line describing the cost for the Tracker. The tracker has a base fee of $200 and then $100 per day for each day they are in the field. Put the line in slope-intercept form.	The slope-intercept form is y = mx + b where m is the slope and b is the y-intercept. In our example, the slope will be the per day fee and the y-intercept will be the base fee.	
If the triangular area of the park that the fox was found in is a right isosceles triangle since its base and height are the same. What is the length of its hypotenuse?	You can use Pythagorean's Theorem ($a^2 + b^2 = c^2$) with a and b as the sides of the triangle and c as the hypotenuse. You can also use the ratios of a right isosceles triangle's sides (x, x, x√2).	
The park needs 3 trackers to validate the blue fox siting and take a picture. There are 7 trackers in the area and available for the job. How many different combinations of 3 trackers can be formed from this group of 7 trackers?	Use the combination formula $C(n,k)=n!/k!(n-k)!$ to find the number of ways to choose 3 trackers from 7. n is the number of trackers available and k is the number of trackers needed. The "!" is a math symbol for factorials.	