



Problem of the Week

Problem B and Solution

'Temp'ting Crickets

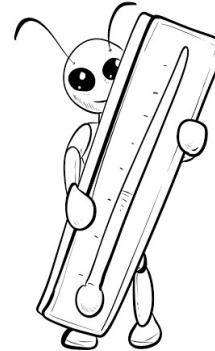
Problem

Crickets can help determine the temperature, in degrees Celsius. One possible way to make this calculation is to follow the steps below.

Step 1: Count the number of chirps in 25 seconds.

Step 2: Divide the number from Step 1 by 3.

Step 3: Add 4 to the number from Step 2.



- (a) By filling in each ___ in the following equation with either a variable or a number, write an equation to show how to get the temperature, t , based on a certain number of chirps, c , in 25 seconds.

$$t = \underline{\quad} \div \underline{\quad} + \underline{\quad}$$

- (b) Fill in the second column of the following table.

Chirps (c) in 25 seconds	Temperature (t) in degrees Celsius
60	
54	
66	

- (c) Fill in the first column of the following table.

Chirps (c) in 25 seconds	Temperature (t) in degrees Celsius
	18
	20
	16



Solution

- (a) To determine the temperature, t , we take the number of chirps in 25 seconds, c , divide by 3, then add 4. That is, $t = \underline{c} \div \underline{3} + \underline{4}$.
- (b) You may use the given steps or the equation from part (a) to fill in the table. For example when there are 60 chirps, we divide by 3 to get 20, and then add 4 to get 24 degrees Celsius.
- Or we may use the equation $t = 60 \div 3 + 4 = 20 + 4 = 24$.

Chirps (c) in 25 seconds	Temperature (t) in degrees Celsius
60	24
54	22
66	26

- (c) To find the number of chirps for a given temperature, we work backwards, reversing the steps as we go. That is, we subtract 4 from the given temperature, and then multiply by 3.

For example when the temperature is 18 degrees Celsius, we subtract 4 to get 14, and then multiply 14 by 3 to get 42 chirps.

The equation to calculate chirps, c , given temperature, t , is $c = (t - 4) \times 3$.

Chirps (c) in 25 seconds	Temperature (t) in degrees Celsius
42	18
48	20
36	16