

Skill Set 12: Make Suppositions

Making suppositions is another higher-order heuristic skill that is often used for upper primary mathematical problems. It requires one to make an assumption to a given problem before attempting to solve it.

Example:

A farmer has 60 chickens and cows. They have a total of 144 legs. How many chickens does the farmer have?



Think

- Make assumptions that the farmer has either all chickens or all cows.
- Look for shortage or excess of legs and solve accordingly.

Solve

Assuming all are chickens:

$$\text{total number of legs} = 60 \times 2 = 120$$

$$\text{difference in total number of legs} \rightarrow 144 - 120 = 24 \text{ (excess)}$$

$$\text{difference in number of legs of chicken and cow} \rightarrow 4 - 2 = 2$$

$$\text{cows} \rightarrow 24 \div 2 = 12$$

$$\text{chickens} \rightarrow 60 - 12 = 48$$

Answer The farmer has **48 chickens**.

Give it a try!

Another farmer has 70 chickens and cows. They have a total of 240 legs. How many cows does the farmer have?



Think

Again look for shortage or excess of legs and solve accordingly.

Solve

Assuming all are cows:

$$\text{total number of legs} = \underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\text{difference in total number of legs} = \underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\text{difference in number of legs of chicken and cow} = \underline{\quad} - \underline{\quad} = \underline{\quad} \text{ (} \underline{\quad} \text{)}$$

$$\text{chickens} \rightarrow \underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\text{cows} \rightarrow \underline{\quad} - \underline{\quad} = \underline{\quad}$$


Answer The farmer has **cows**.

(Answer: 50)

Practice: Make Suppositions

1. Zach has 50 5¢ coins and 10¢ coins. The total value of the coins is \$3.30. How many 5¢ coins does Zach have?


 **Think**

 **Solve**

Answer

2. There are 50 beetles and spiders in a tank. They have a total of 328 legs. How many beetles are in the tank?

 **Think**

 **Solve**

Answer

Practice: Make Suppositions

3. A school paid \$434 for admission tickets to a museum for 101 students and teachers. If an adult ticket cost \$6 and a student ticket cost \$4, how many adult tickets did the school buy?



Think



Solve



Answer

4. Vanessa packed 255 cookies into a total of 20 boxes. A box can contain 12 cookies or 15 cookies. How many boxes of 12 cookies did Vanessa pack?



Think



Solve



Answer

Practice: Make Suppositions

5. An office manager purchased 37 calendars and organizers for \$367.50. If each calendar cost \$6.80 and each organizer cost \$12.90, how many organizers did the manager purchase?



Think



Solve



Answer

