

Tree Lizards

Standard:

7.EE.4a

Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.



Photo by Tom Brennam
www.reptilezofaz.com

You're a research biologist interested in conserving the tree lizard species.



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Example A:

- 5 adults, 4 women
- Each lays 3 eggs
- How many of the offspring (babies) do you think will survive?
- $\frac{2}{3}$ of the offspring will survive
- How many lizards will there be next year?

Example A Continued...

- 5 adults, 4 females, 3 eggs per female, $\frac{2}{3}$ eggs survive
- $5 + (4 \times 3) \times \frac{2}{3} =$
- $5 + 12 \times \frac{2}{3}$
- $5 + 24/3$
- $5 + 8 =$
- 13 lizards

Practice Problem 1:

- 8 adults, 4 female, each female lays 5 eggs, $\frac{1}{2}$ eggs survive
- Write an equation
- Find next year's population

Practice Problem 1:

- 8 adults, 4 female, each female lays 5 eggs, $\frac{1}{2}$ eggs survive
- $8 + (4 \times 5) \times \frac{1}{2}$
- $8 + 20 \times \frac{1}{2}$
- $8 + 20/2$
- $8 + 10$
- $= 18$ lizards

Think about it...

- Reality Check! How do you really know the number of eggs that survive in the wild?
- A real research biologist would catch the lizards one year and come back a year later and count them again.

Practice Problem 2:

- 4 adult lizards, 2 female, each female lays 5 eggs
- Next year you find 12 lizards.
- What fraction of the eggs survived?
- Write an equation with x representing the fraction of eggs that survive. The solve for x .

Practice Problem 2:

- 4 adult lizards, 2 female, each female lays 5 eggs
- 12 lizards are found the following year
- $4 + (2 \cdot 5) \cdot X = 12$
- $4 + 10X = 12$
- $10X = 12 - 4$
- $10X = 8$
- $X = 8/10$ or $4/5$

Closure: What mistake did the researcher make?

- 3 adult lizards, 2 female, each female lays 4 eggs
- 10 lizards are found the following year
- $3 + (2 \cdot 4) \cdot X = 10$
- $3 + 8X = 10$
- $11X = 10$
- $X = 10/11$

Extension:

- What happens if some of the adult lizards die?
- How would you change your equation?