Three-Way Ratios

RP05-V1 · storyboard · RP05 Ratios of three quantities. Read each picture with its sentences.

Picture 1

Dogs : cats : rabbits $= 2 : 3 : 30$ in a pet shop with 385 animals. How many cats are there?

$$2 + 3 + 30 = 35$$ animals in a group

$$385 \div 35 = 11$$ groups

$$\boxed{3 \times 11 = 33}$$ cats

1. In a pet shop, dogs to cats to rabbits is 2 to 3 to 30, and there are 385 animals.
2. How many cats are there?
3. Add all three parts: 2 plus 3 plus 30 is 35 animals in a group.
4. 385 divided by 35 is 11, so there are 11 groups.
5. Each group has 3 cats: 3 times 11 is 33 cats.

Picture 2

Trap $2 : 3 : 30$

$\times$ $2 + 3 = 5$ in a group

✓ $2 + 3 + 30 = 35$ in a group

6. Watch for the trap: using only two parts for the whole.
7. A group has all three: 35 animals.

Picture 3

Red : blue : green beads $= 1 : 5 : 3$. There are 27 green beads. How many beads are there in all?

$$27 \div 3 = 9 \quad \text{green is the } 3$$

$$1 + 5 + 3 = 9 \quad \text{beads in a group}$$

$$\boxed{9 \times 9 = 81} \quad \text{beads}$$

8. Red to blue to green beads is 1 to 5 to 3.
9. There are 27 green beads.
10. How many beads are there in all?
11. The 27 green beads go with the 3, the green number.
12. 27 divided by 3 is 9 groups.
13. Each group has 1 plus 5 plus 3, which is 9 beads.
14. 9 groups of 9 is 81 beads: 9 red, 45 blue and 27 green.

Picture 4

Trap 27 green beads

$$\times \; 27 \div 1 \times 9 = 243$$

$$\checkmark \; 27 \div 3 \times 9 = 81$$

Two of the three

$\text{blue} : \text{green} = 5 : 3, \qquad \text{green} : \text{all} = 3 : 9 = 1 : 3$

15. Watch for the trap: matching the number to the wrong part.
16. 27 is the green beads, so divide by the green number, 3.
17. For two of the three, take the two numbers you need.
18. Blue to green is 5 to 3, and green to all the beads is 3 to 9, or 1 to 3.