Two Groups Together

RP18-V1 · storyboard · RP18 Combined groups; convenient numbers. Read each picture with its sentences.

Picture 1

Class A has 20 students and 30% of them have a pet. Class B has 30 students and 60% have a pet. What percent of all 50 students have a pet?

$$0.3 \times 20 = 6, \quad 0.6 \times 30 = 18$$ the part in each group

$$6 + 18 = 24 \text{ of } 20 + 30 = 50$$ parts and wholes

$$\boxed{\frac{24}{50} = 48\%}$$

1. Class A has 20 students, and 30 percent of them have a pet.
2. Class B has 30 students, and 60 percent have a pet.
3. What percent of all 50 students have a pet?
4. In class A, 30 percent of 20 is 6.
5. In class B, 60 percent of 30 is 18.
6. Add the parts and add the wholes: 24 of 50 students.
7. 24 over 50 is 48 percent.

Picture 2

Trap 30% and 60%

$\times \quad \frac{30\%+60\%}{2} = 45\%$

$\checkmark \quad \frac{24}{50} = 48\%$

8. Watch for the trap: averaging the percents.
9. The classes are different sizes, so the bigger class counts more.

Picture 3

4% of the girls and 10% of the boys at a school wear glasses. There are 3 times as many girls as boys. What percent of all the students wear glasses?

$$\text{take } 100 \text{ boys and } 300 \text{ girls}$$ a convenient number

$$0.04 \times 300 = 12, \quad 0.1 \times 100 = 10$$

$$\boxed{\frac{22}{400} = 5.5\%}$$

10. 4 percent of the girls and 10 percent of the boys at a school wear glasses.
11. There are 3 times as many girls as boys.
12. What percent of all the students wear glasses?
13. No numbers are given, so choose a convenient number: 100 boys, and 3 times as many, 300 girls.
14. Then 12 girls and 10 boys wear glasses.
15. 22 of 400 students: 5.5 percent.

Picture 4

Trap How many wear glasses?

$$\times\ 22$$

✓ can't tell: only the percent

16. Watch for the trap: choosing a number when the answer depends on it.
17. We chose 100 boys, so it can't tell you how many students really wear glasses.
18. Only the percent.