Equal Ratios and Proportions

You can find equal ratios just like you find equivalent fractions.

Find ratios equal to $\frac{30}{40}$.

Multiply both terms by the same number.

$\frac{30 \times 2}{40 \times 2} = \frac{60}{80}$

Divide both terms by the same number. To find the simplest form ratio, divide by the greatest common factor (GCF) of the two numbers.

The GCF of 30 and 40 is 10.

$\frac{30 \div 10}{40 \div 10} = \frac{3}{4}$

Two equal ratios form a proportion. The units must be the same in both ratios.

Do the ratios 24 ft:16 seconds and 36 ft:24 seconds form a proportion?

First check the units.

Both ratios compare feet to seconds, so the units are the same.

Then write each ratio in simplest form.

$\frac{24 \text{ ft}}{16 \text{ seconds}} = \frac{3 \text{ ft}}{2 \text{ seconds}}$

$\frac{36 \text{ ft}}{24 \text{ seconds}} = \frac{3 \text{ ft}}{2 \text{ seconds}}$

Compare the simplest form ratios. They are the same, so the ratios form a proportion.

Write three ratios that are equal to the ratio given.

1. $\frac{3}{5}$ _____

2. $\frac{4}{8}$ _____

3. $\frac{6}{18}$ _____

4. 8:10 _____

5. 6:8 _____

6. 10:12 _____

7. 12 to 18

8. 16 to 18

9. 5 to 25

_____   _____   _____

Write the ratios in simplest form.

10. $\frac{10}{15}$ _____

11. 21 to 14 _____

12. 15:25 _____

Write = if the ratios form a proportion; if they do not form a proportion, write ≠.

13. $\frac{15}{18}$ ∣ $\frac{10}{12}$ _____

14. 20:24 ∣ 24:30 _____

15. 16 to 20 ∣ 28 to 35 _____

16. Number Sense Dale says that the ratios 3:5 and 2:10 are equal. Is he correct? Explain.

_____