062 Math Practice

Equal Ratios

Some ratios can be written in lower terms.
The ratio 12:16 can be expressed as 3:4.

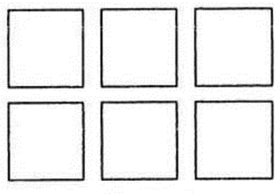
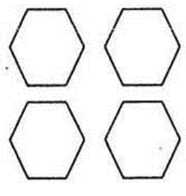
Example: Use a ratio to make the following comparisons. Write the answer in lowest terms.

a. 6 pounds to $2.40 $\frac{6}{240}$ or $\frac{1}{40}$

b.  $\frac{15}{10}$ or $\frac{3}{2}$

c. 20 minutes to one hour $\frac{20}{60}$ or $\frac{1}{3}$

Write a ratio to make each comparison. Use the fractional form. Write the ratio in lowest terms.

1.  to  _____

2. 45 minutes to 3 hours _____

3. 240 miles to 9 gallons _____

4.  to  _____

5.  to  _____

6.  to  _____

7. 8 dogs for 6 doghouses _____

8. 8 lamps for 20 desks _____

9. 12 ties for 3 shirts _____

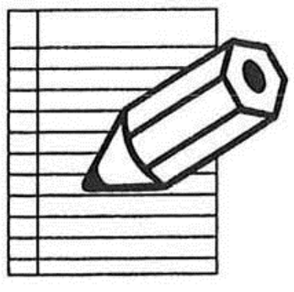
10. 160 tires to 4 pumps _____

11. 6 hits for 8 times at bat _____

12. 10 crates for 56 books _____

13. 3 cars for 12 drivers _____

14. 480 apples for 10 pies _____



Ernie made 9 free throws out of 12 attempts. What is Ernie's ratio of free throws to attempts?

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063 Math Practice

Comparing Ratios

You can easily find out whether two ratios are equal. To do this, you have to construct a proportion. A *proportion* has two parts: the means and the extremes.

$\frac{2}{3} = \frac{4}{6}$ and $\underbrace{2:\overbrace{3 = 4}:6}_{\text{extremes}}$ (means)

If the product of the means equals the product of the extremes, then the ratios are equal. In the above example, 3 x 4 = 12 and 2 x 6 = 12. Therefore, these two ratios are equal and form a proportion.

Examples:

$\frac{12}{15} ? \frac{20}{25}$

20 x 15 ? 12 x 25

300 ? 300

300 = 300

$\frac{12}{15} = \frac{20}{25}$

The symbol for "is equal to" is =.

$\frac{8}{12} ? \frac{20}{25}$

20 x 12 ? 8 x 25

240 ? 200

240 ≠ 200

$\frac{8}{12} \neq \frac{20}{25}$

The symbol for "is not equal to" is ≠.

Multiply the means and extremes to tell which are proportions. Write = or ≠ for each.

1. $\frac{10}{16}$ ◯ $\frac{5}{8}$
2. $\frac{12}{8}$ ◯ $\frac{9}{6}$
3. $\frac{8}{6}$ ◯ $\frac{4}{3}$
4. $\frac{20}{15}$ ◯ $\frac{7}{5}$
5. $\frac{15}{18}$ ◯ $\frac{2}{3}$
6. $\frac{24}{6}$ ◯ $\frac{12}{3}$
7. $\frac{10}{7}$ ◯ $\frac{12}{8}$
8. $\frac{10}{12}$ ◯ $\frac{15}{18}$
9. $\frac{5}{6}$ ◯ $\frac{8}{9}$
10. $\frac{4}{5}$ ◯ $\frac{3}{4}$
11. $\frac{5}{9}$ ◯ $\frac{15}{27}$
12. $\frac{9}{10}$ ◯ $\frac{11}{12}$
13. $\frac{4}{9}$ ◯ $\frac{6}{11}$
14. $\frac{20}{21}$ ◯ $\frac{12}{14}$
15. $\frac{10}{15}$ ◯ $\frac{33}{51}$
16. $\frac{30}{10}$ ◯ $\frac{33}{11}$