Ratios and Proportions

RATIO (RATE):   A comparison of 2 numbers by division.

Ways to Write a Ratio (Rate)

- $a\ to\ b$
- $a : b$ where b is not equal to 0.
- $\dfrac{a}{b}$

UNIT RATE: A rate where $b = 1$ or when the denominator = 1.

Find the unit rate.

1.   If you work 6 hours and make a total of $54, how much do you make per hour?

2.   Mr. Lee gives way too much homework. In the next 4 weeks, he plans to give 524 problems to his Expanded Math classes. How many homework problems is that per week?

3.   A 10-ounce bottle of shampoo costs $2.40. What is the cost per ounce?

PROPORTIONS: An equation that states 2 ratios are equal.

Determine if the 2 ratios are proportional.

4. $\dfrac{8}{24} = \dfrac{16}{48}$

5. $\dfrac{5}{10} = \dfrac{6}{3}$

6. $\dfrac{10}{30} = \dfrac{4}{12}$

Solve each proportion by finding the value of x.

7. $\dfrac{x}{24} = \dfrac{1}{3}$

8. $-\dfrac{3}{x} = \dfrac{6}{10}$

9. $\dfrac{6}{8} = -\dfrac{21}{x}$

10. $-\dfrac{5}{8} = \dfrac{7}{x}$

11. $\dfrac{2}{1.2} = \dfrac{5}{x}$

12. $\dfrac{11}{18} = -\dfrac{x}{49.5}$

13. $\dfrac{x+2}{14} = \dfrac{5}{10}$

14. $\dfrac{9x}{x+12} = \dfrac{9}{5}$

15. $\dfrac{18+x}{3} = \dfrac{14-x}{7}$

16. $\dfrac{2x-2}{14} = \dfrac{2x-4}{6}$

17. $\dfrac{6}{x+2} = \dfrac{12}{x-1}$

18. $-\dfrac{x+8}{10} = -\dfrac{x-3}{2}$