**Activity 4.5.2 Solving Equations with Fractions and Rational Expressions**

Solve each equation or problem.

1. A rectangle that has a perimeter of 22 meters has a width that is four less than one half its length. Find the length and the width of the rectangle.
2. A parallelogram has a base whose measure is given by 2a/(a +2) and the measure of the adjacent side is a/(a +1).
3. Find the value of a if the perimeter is 4 meters.
4. Round the value to the nearest hundredth.
5. Using the rounded value in part b, find the measures of the base and adjacent side if the perimeter is 4 meters.
6. In unit 1, you combined functions finding f(x) + g(x) and f(x) – g(x). If and
7. Find h(x) = f(x) + g(x) and find the domain of h
8. Find k(x) = f(x) – g(x) and find the domain of k
9. Now solve f(x) – g(x) = 0
10. If and find k(x) where k is the product of f and g.
11. Domain of f is
12. Domain of g is
13. Domain of k is
14. Does the graph of k cross the x axis? Explain.
15. Solve f(x)g(x) = 0
16. A boat can travel 10 miles downstream (with the current) in the same amount of time it can travel 8 miles upstream (against the current).If the speed of the current is 2mph, what is the speed of the boat in still water? Hint: D = RT
17. Jayden wants to help his grandfather stain the deck. Last year he did it for his grandfather and it took 6 hours. His grandfather can do it by himself in 5 hours. This year they will do it together so it will not take long. How long will it take this year?
18. To make a spray solution to kill poison ivy, Allen needed to mix 5 parts of water to 2 parts of the liquid ivy killer. If he used 15 more quarts of water than quarts of the liquid ivy killer, how much water did he use?