Name: _____

MATH 1010 LAB ACTIVITY: RADICALS

Part I: Solving Equations with Radicals

Remember that raising both sides of an equation to a power can cause extraneous solutions, so you must check your answers when you solve using this method. It is not enough to merely confirm that your possible solutions are in the domain, you must actually input your potential solution into the original equation and verify that it would make the equation true.

Solve each equation below and **check your answers on each problem**.

1. $\sqrt{2x+3} = 5$

2. $\sqrt[3]{11x-2} = 4$

3. $\sqrt{x+7} = x+5$

4. $2x = 3+\sqrt{5x+5}$

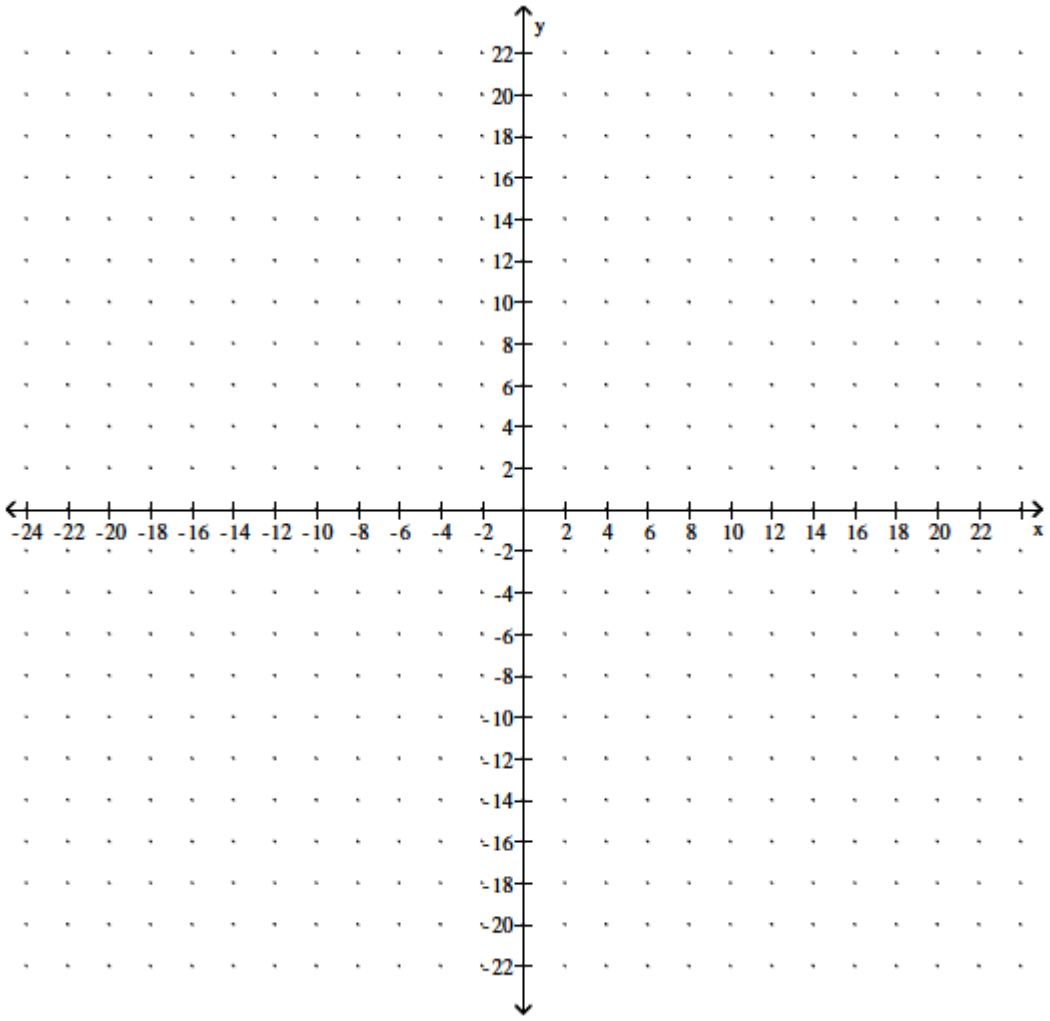
5. $3\sqrt{x} + 4 = x$

Part II: Graphing Radicals

Review Question: Given the function $f(x) = \sqrt{x}$

1. State the domain of the function: _____
2. List at least **five** exact (x, y) ordered pairs that lie on the graph of this function. Think about the domain as you choose your x values!

3. Plot your points to graph the function.

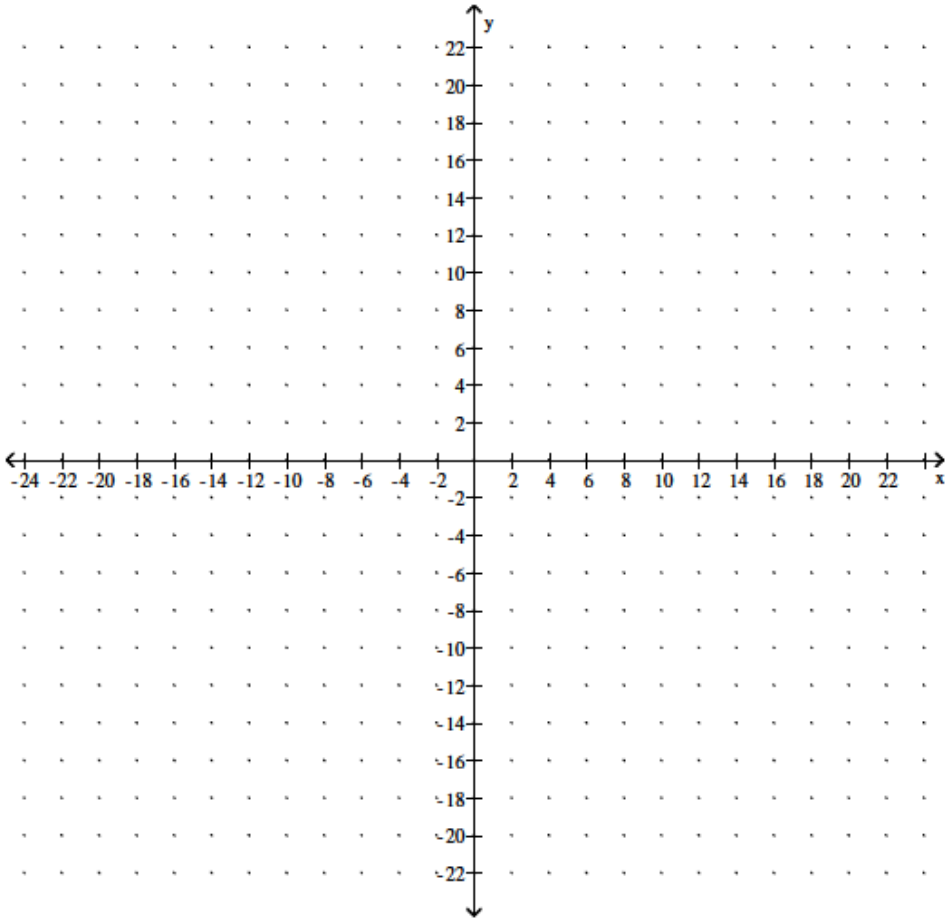


Given the function $f(x)=\sqrt{x}+1$

4. State the domain of the function:

5. List at least **five** exact (x, y) ordered pairs that lie on the graph. Think about the domain as you choose your x values!

6. Plot your points to graph the function.



7. Compare your graph to the graph of another student. Are they the same? Did you use the same points? Discuss the graph with your lab buddy and be sure you agree.

8. Now discuss the similarities and differences between your graph here and the one on the previous page – what changed and how did it affect the graph? Explain with brief complete sentences.

Part III: A Look at How Square Roots are Used in the Real World.

Students often want to know if radicals are ever used outside of the classroom. The answer is yes! Click on the following link to see how functions using square roots are used by law enforcement officers to help determine the causes of traffic accidents.

http://mathcentral.uregina.ca/beyond/articles/rcmp/accident.html.

1. In the formula $S = 15.9\sqrt{\frac{R \cdot (f \pm e)}{2}}$, what do the variables f and e represent? Does it make sense that these variables would affect the skid distance?

2. Discuss the concept of skid distance with your lab buddies. Have you ever skidded in your car? How did the road conditions contribute to the outcome?

3. What are some other real world applications of radical functions?