

# Intro to Calculus

## Workshop 1

1. a. Use your calculator to graph each of the following:

ii.  $y_1 = \sqrt{x^2}$

iii.  $y_2 = \sqrt[3]{x^3}$

iv.  $y_3 = \sqrt[4]{x^4}$

v.  $y_4 = \sqrt[5]{x^5}$

b. Evaluate  $y_1$  at several values of  $x$ . Find a simpler expression for  $y_1$ .

c. Find simpler expressions for  $y_2$ ,  $y_3$ , and  $y_4$ . Make sure that your simpler expressions really generate the same graphs!

2. Let  $a$  and  $b$  represent two point on the real number line. Let  $y$  represent the distance between two points. Write a mathematical expression using absolute value that represents  $y$  in terms of  $a$  and  $b$ . Verify that your expression works by trying it with some numbers.

3. For what real numbers,  $x$ , is:

a.  $|x - 2| = x - 2$

d.  $\sqrt{x^2} > x$

b.  $|x| \leq x$

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

c.  $\sqrt{x^2} > x$

4. There is a size of paper called meter paper that can be purchased. A sheet of meter paper has an area of one square meter. It is rectangular, and shaped so that if cut in half the result is two pieces that are similar to the original piece of paper. What are the dimensions of a sheet of meter paper?