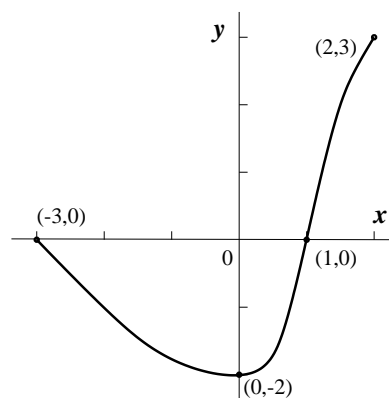


Workshop 1 - Math 151 - Sections 04, 05, 06 - Fall 2009

Problem (1) To the right is a graph of $y = A(x)$.

- Find the domain and range of A .
- If B is defined by $B(x) = A(x) + 1$, sketch the graph of B as well as you can. Find the domain and range of B .
- If C is defined by $C(x) = A(2x + 3)$, sketch the graph of C as well as you can. Find the domain and range of C .
- If D is defined by $D(x) = \frac{1}{A(x)}$, sketch the graph of D as well as you can. Find the domain and range of D .



Problem (2) Suppose $f(x) = |x - |x - 3||$. $f(x)$ is defined for all real numbers.

- Find the graph of $y = f(x)$ in the window $-5 \leq x \leq 5$ and $0 \leq y \leq 10$.
- Give a piecewise definition (on all of its domain) of $f(x)$ *without* using absolute value. The graph may help to answer this question, but justify your answer algebraically with a case-by-case argument from the equation for y . Your justification could begin with a statement such as, “When $x \geq 3$, then y is given by the formula ... because ...”.

Problem (3) Suppose $f(x) = \sqrt{\frac{x}{4-x}}$.

- Find the graph of $y = f(x)$ in the window $-5 \leq x \leq 5$ and $0 \leq y \leq 10$.
- What is the domain of f ? Verify your statement.
- Solve $y = f(x)$ for x . What is the range of f ? Your expression for x in terms of y may help to verify your statement.