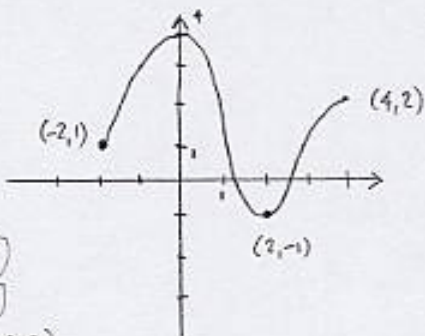


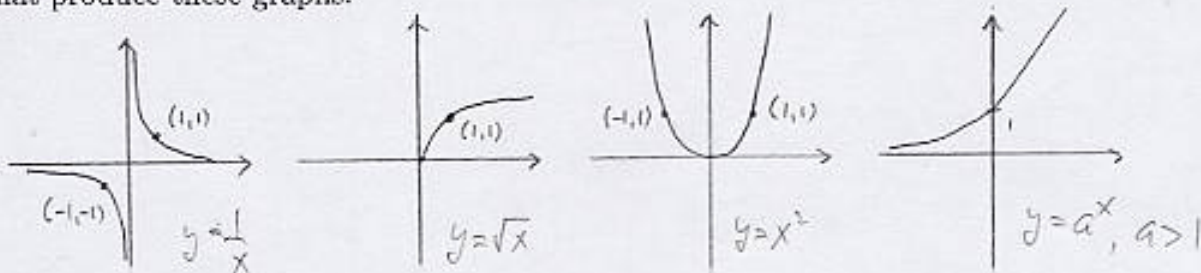
1. (5pts) Consider the graph of the function f at right and answer the following questions.



- a) What is $f(-1)$? $f(-1) = 3$
 b) How many solutions does the equation $f(x) = 2$ have? 3 solutions
 c) What are the domain and range of f ?
 d) On which interval is f decreasing?

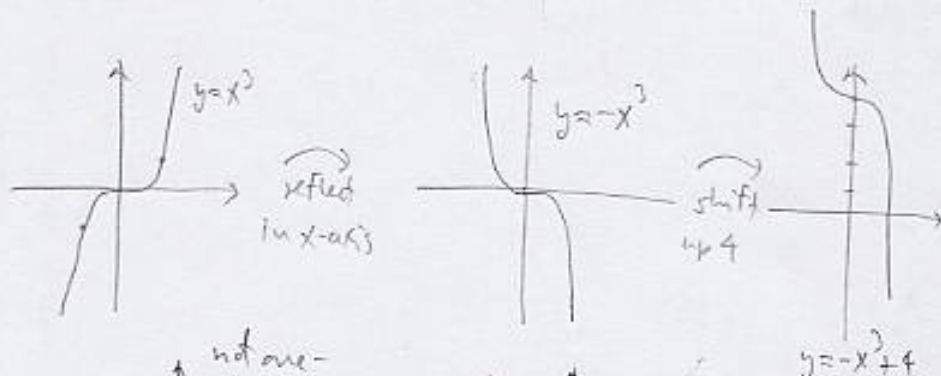
Domain = $[-2, 4]$
 Range = $[-1, 4]$
 Decreasing on $(0, 2)$

2. (4pts) The graphs of four functions are given. Write formulas (the simplest possible) that produce these graphs.

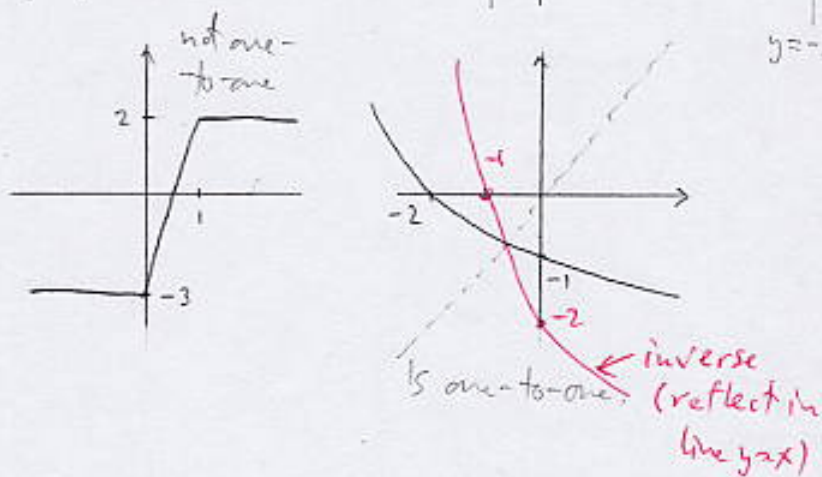


3. (4pts) Sketch the graph $y = 4 - x^3$ by sketching the graph of $y = x^3$ and performing simple transformations on it.

$y = -x^3 + 4$



4. (4pts) Which of the functions at right are one-to-one? Draw the graph of the inverse function, if the function is one-to-one.



5. (3pts) Simplify:

$\log_3 \frac{1}{9} = -2$ $3^2 = \frac{1}{9}$

$\log_4 100 - 2 \log_4 5 = \log_4 100 - \log_4 5^2 = \log_4 \frac{100}{5^2} = \log_4 4 = 1$