Math-1003b Exam #1 Makeup

Name: _____

This exam is closed book and notes. You may use a scientific calculator; however, no other electronics are allowed. Show all work; there is no credit for guessed answers. All answers must be in factored form, where appropriate. All numerical answers should be in exact values, unless you are specifically asked for an approximate value.

1). Perform the operation:

$$\frac{y}{y^2 - 81} + \frac{2}{9 - y}$$

2). Perform the operation:

$$\frac{16(x-2)}{x^2 + 10x + 25} \cdot \frac{2x + 10}{4x - 8}$$

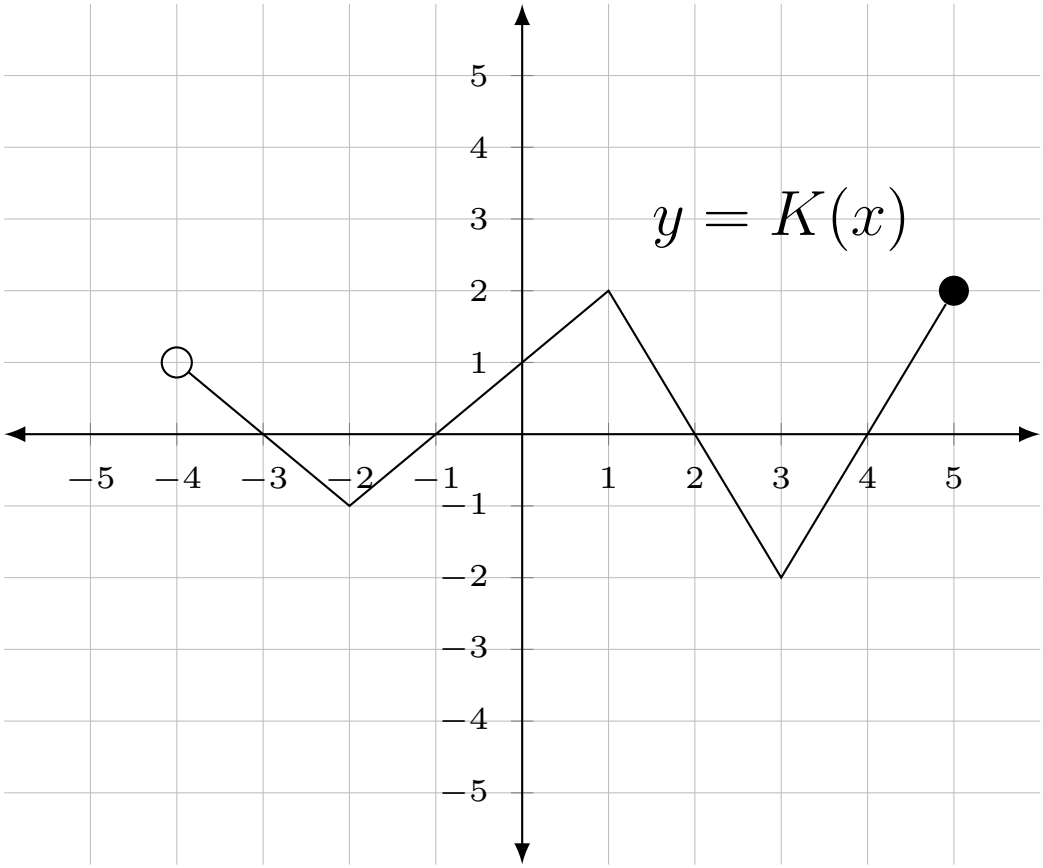
3). Perform the operation:

$$\frac{\frac{7-2y}{2y}}{\frac{7}{y}-2}$$

4). Solve for w:

$$\frac{w}{5}-\frac{w+3}{w}=-\frac{3}{w}$$

5). Use the graph of $K(x)$ to answer the following questions:



a). What is $K(1)$?

b). What is the y-intercept?

c). For what values of x is $K(x) = 0$?

d). What is the domain of K, in interval notation?

e). What is the range of K, in interval notation?

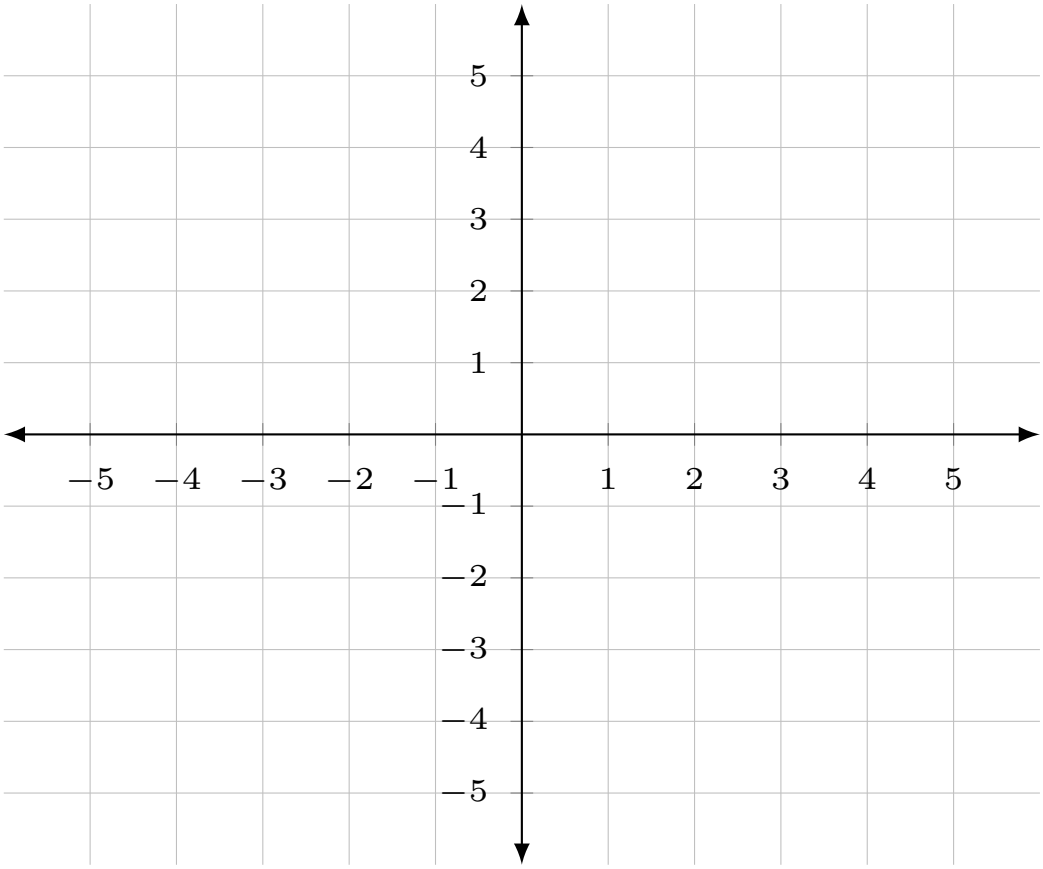
6). Given the function: $f(x) = 2x + 5$:

a). Is f constant, linear, quadratic, or none of these?

b). Find the y-intercept(s) of f.

c). Find the x-intercepts(s) of f.

d). Plot the intercepts of f on the axes below and label the coordinates. Also draw the complete graph of f.



7). David can run 6 mph faster that he can speed walk. David can run 16 miles in the same amount of time it takes him to speed walk 8 miles. How fast can David run and how fast can he speed walk?

8). Given:

$$\begin{aligned} f(x) &= x - 3 \\ g(x) &= x^2 - 3x \\ h(x) &= x + 5 \end{aligned}$$

Do the following:

a). What is $(f - g)(x)$?

b). What is $(g \circ f)(x)$?

c). What is $(h \circ g)(1)$?

d). What is $\left(\frac{f}{g}\right)(x)$?

e). What is the domain of $\left(\frac{f}{g}\right)(x)$ in interval notation?

9). Match the following nine functions with the correct graph show below. Find the graph that matches each function and write the letter for that graph to the right of the corresponding function.

$f(x) = x$ _____

$f(x) = x^2$ _____

$f(x) = x^3$ _____

$f(x) = \sqrt{x}$ _____

$f(x) = \frac{1}{x}$ _____

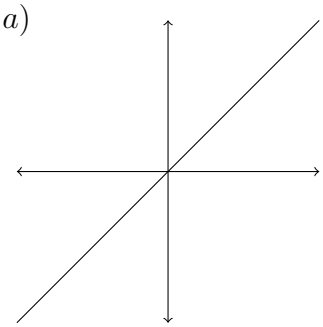
$f(x) = |x|$ _____

$f(x) = 2$ _____

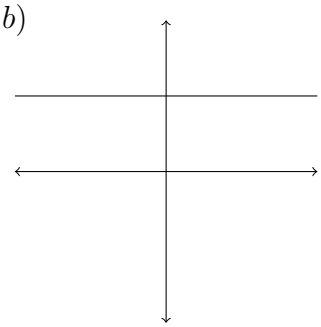
$f(x) = -x + 1$ _____

$f(x) = -x^2 - x$ _____

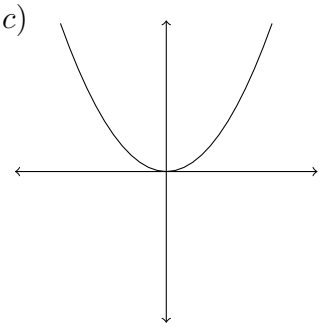
$a)$



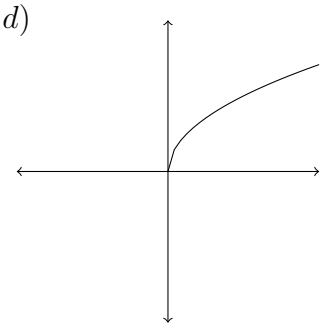
$b)$



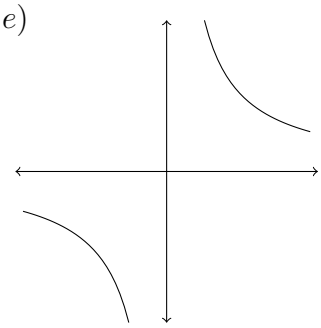
$c)$



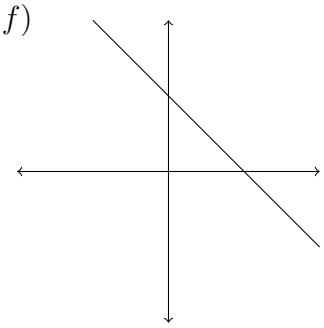
$d)$



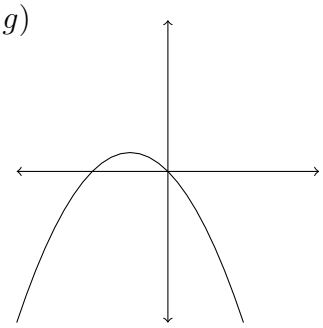
$e)$



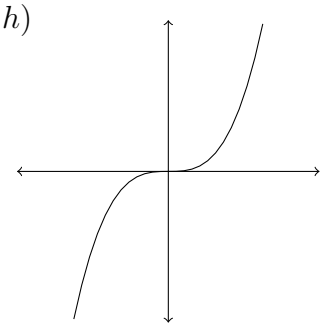
$f)$



$g)$



$h)$



$i)$