22M:9.SCA
QUIZ 2
June 24, 2009

NAME: SOLUTION

Write your simplified answers in the provided _____.
State NONE if there is not one. Leaving it blank means that you do not know the answer.

1. Let $f(x) = \frac{x+2}{x-4}$.

a. Is the point $(3,4)$ on the graph of f? No $\quad f(3) = \frac{2+3}{3-4} = -5 \neq 4$

b. If $x = 1$, what is $f(x)$? -1 What point is on the graph of f? $(1,-1)$ $\quad f(1) = \frac{3}{-3} = -1$

c. If $f(x) = 2$, what is x? 10 What point(s) are on the graph of f? $(10,2)$ $\quad 2 = \frac{x+2}{x-4}$

$2(x-4) = x+2$
$2x-8 = x+2$
$x = 10$

d. What is the domain of f? All reals except 4 or $(-\infty,4)\cup(4,\infty)$.

e. List all x–intercepts of the graph of f, if any. $x=-2$

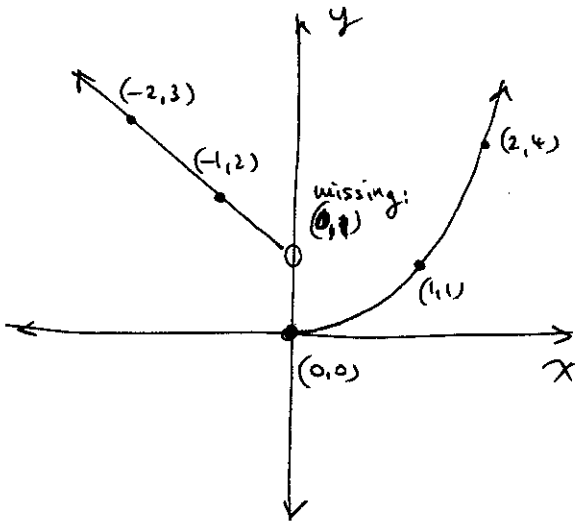
$y=0 \Rightarrow 0 = \frac{x+2}{x-4}$
$\Rightarrow 0 = x+2$
$\Rightarrow x = -2$

f. List all y–intercepts of the graph of f, if any. $-\frac{1}{2} = y$

$x=0 \quad f(0) = \frac{2}{-4}$

2. Plot the graph of the function $f(x) = \begin{cases} 1-x & \text{if } x < 0 \\ x^2 & \text{if } x \geq 0 \end{cases}$.

Be sure to label three points (with both coordinates) on the graph.
List its domain, range and all x-intercept(s) and y-intercept(s). Identify which is which, and state none if there is not one.



Domain $\mathbb{R}$
Range $[0,\infty)$
all nonnegative reals.

$(0,0)$ is the only x-intercept
$(0,0)$ " " " y-intercept