NAME (Print!): KEY

Check one: (1pm): _____
(2pm): _____

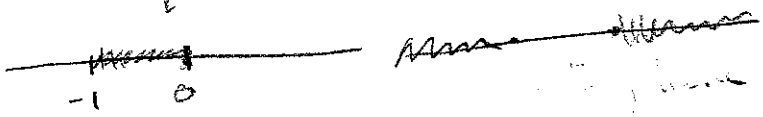
Quiz 1

Problem 1, 3 points: Express the set

$$\left\{x : \frac{x}{x+1} < 0\right\}$$

as an interval. Show all you work.

$\frac{x}{x+1} < 0$ if $x<0$ and $x+1>0$ ($x>-1$) or $x>0$ and $x+1<0$



So $(-1,0)$

Problem 2, 4 points: For which values of c does $x^2 + cx + 1$ have a double root? No real roots? Show your work.

$$\frac{-c \pm \sqrt{c^2-4}}{2}$$

Double root iff $c^2 = 4$

$c = \pm 2$

No real roots

$c^2 - 4 < 0$

$c^2 < 4$

$-2 < c < 2$

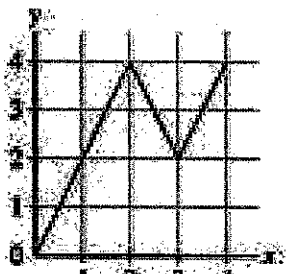
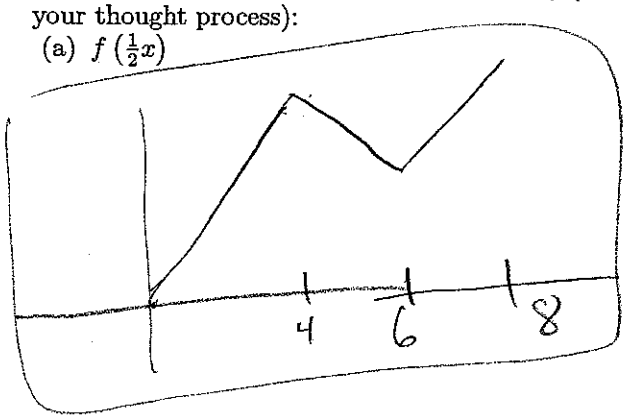


FIGURE 27

Problem 3, 3 Points: The pictured graph is of $y = f(x)$. On coördinate axes you draw yourself, graph the following (show your work or at least your thought process):

(a) $f\left(\frac{1}{2}x\right)$



$x=4$

$f(\frac{1}{2}x) = f(2) = 4$

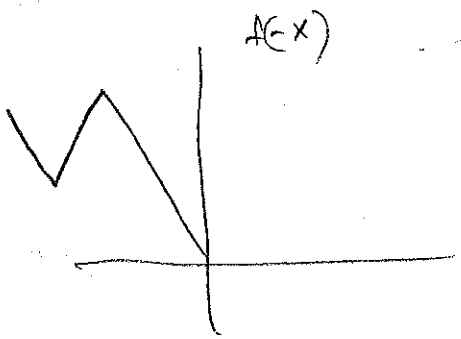
$x=6$

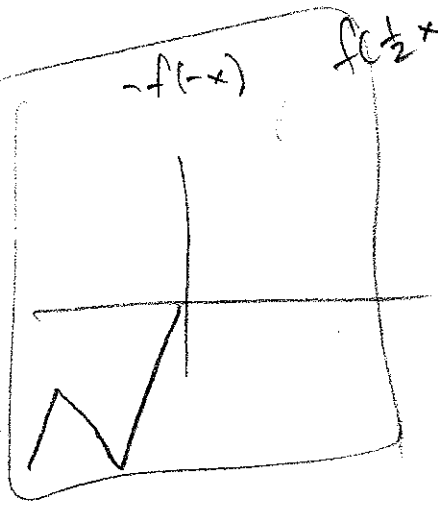
$f(\frac{1}{2}x) = f(3) = 2$

$x=8$

$f(\frac{1}{2}x) = f(4) = 4$

(b) $-f(-x)$





(c) $f(x+2)$