Quiz #2

Problem 1: Check if the following lines have slopes, if they do find them, if they don't say why:

a) $2y = -2x + 4$,
b) $y = 3$,
c) $x = 12$

Problem 2: Find slope/intercept equations of the line:

a) passing though A=(4,2) and B=(3,4).
b) with the slope $m = 2$ passing though the point $C = (1, 1)$.

Problem 3: Find point/slope equation of the line which is parallel to $4x+6y = 0$ and passes through the point $(2, 0)$.

Problem 4: What is the center and radius of the following circle:

$$(x - 4)^2 + y^2 + 4y = 21.$$

Problem 5: Determine if following equations are functions:

a) $x^3 - y = 0$,
b) $x + y^2 = 1$.

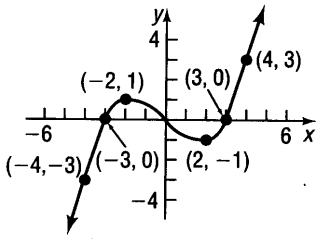
Problem 6: Find domain of the following function:

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

Problem 7: Consider $f(x) = -3x^2 + 5x$.

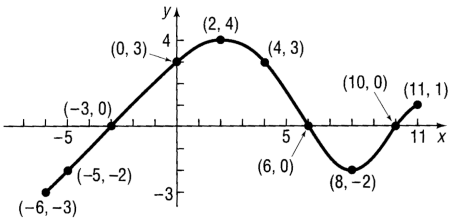
a) Find $f(3)$,
b) Find the difference quotietnt $\frac{f(x+h)-f(h)}{h}$.

Problem 8: Consider the following graph:



a) Find $f(-2)$ and $f(2)$.
b) For what numbers $f(x) = 0$?
c) For what numbers $f(x) < 0$?
d) What is the domain of this function?
e) What is range of this function?
f) For what value of x does $f(x) = 3$?

Problem 9: Consider the following graph:



a) Is this function increasing on $[-6, 2]$?
b) Is this function decreasing on $[0, 8]$?
c) Is there a local maximum at $x = 2$? If yes, what is it?.
d) List the numbers at which this function has local minuma. What are they?

Problem 10: Graph the following function:

$$f(x) = \begin{cases} \frac{1}{x} & \text{if } x < 0, \\ \sqrt{x} & \text{if } 0 \le x \le 1, \\ 1 & \text{if } x > 1. \end{cases}$$

Also, find $f(2)$, x and y intercepts and intervals for which this function is increasing.

Problem 11: Graph $h(x) = \sqrt{x + 1}$. Show each step of the transformation process.

Problem 12: Graph $g(x) = 3(x - 2)^2 + 1$. Show each step of the transformation process.