Name: Key

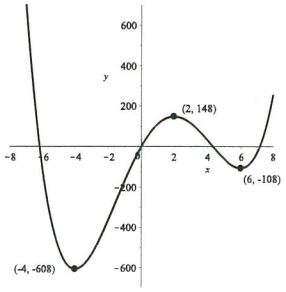
Math 121 College Algebra – Crawford

Quiz 4-B(1)&(2)

05 April 2017

Books and notes (in any form) are not allowed. You may use a calculator (**CALCULATOR NUMBER:** _____). *Show all work for full credit* and clearly indicate your answers. Good Luck!

1. (2 pts) On which interval(s) is the following function decreasing?



$(-\infty, -4) \cup (2, 6)$

2. (6 pts) Given $f(x) = x^2 + 1$ and $g(x) = 3 - x$.

(a). Evaluate $(f + g)(2)$.

$= f(2) + g(2)$

$= (2)^2 + 1 + 3 - 2$

$= 5 + 1$

$= \boxed{6}$

(b). Find $f \circ g$.

$(f \circ g)(x) = f(g(x)) = f(3 - x) = \boxed{(3 - x)^2 + 1}$

$= 9 - 6x + x^2 + 1$

$= x^2 - 6x + 10$ (simplified)

3. (3 pts) Determine whether the following function is odd, even, or neither. [You must show algebraic work to justify your answer.]

$f(x) = x\sqrt{4 + x^2}$

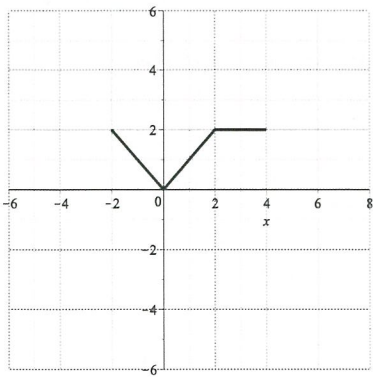
$f(-x) = -x\sqrt{4 + (-x)^2}$

$= -x\sqrt{4 + x^2}$

$= -f(x)$

$\Rightarrow$ odd

4. (4 pts) Given the graph of $f(x)$ below.



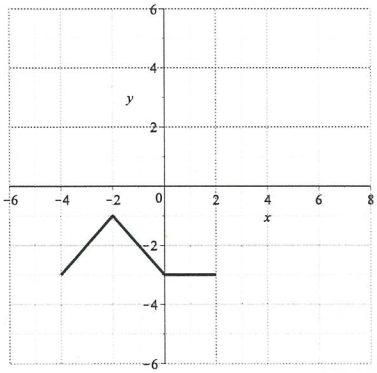
Shift Right 2

Shift up 1

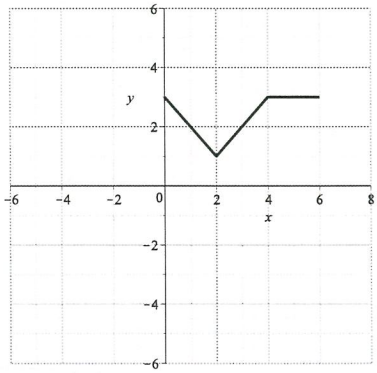
(a). Which of the following is a graph of $y = -f(x-2)+1$?

Reflect vertically

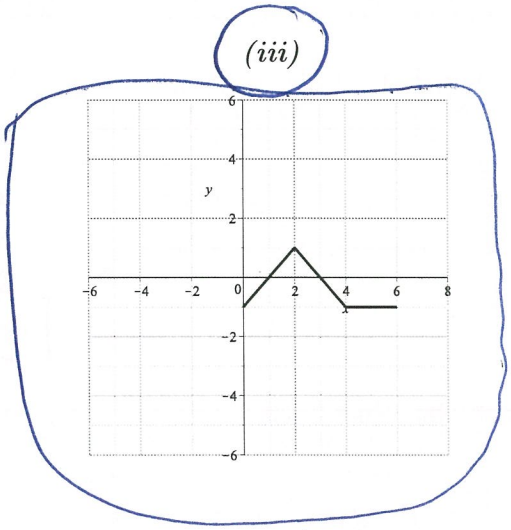
(i)



(ii)



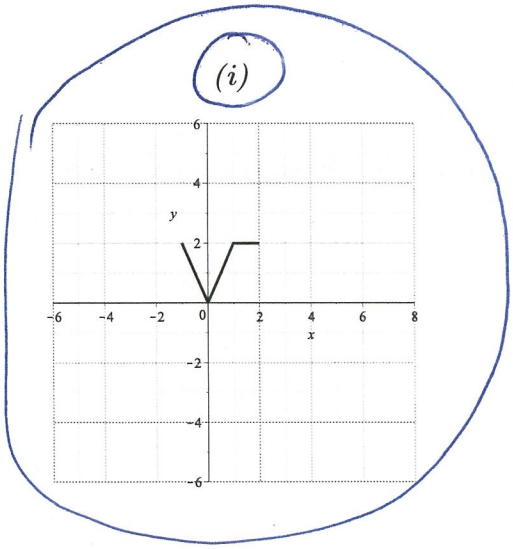
(iii)



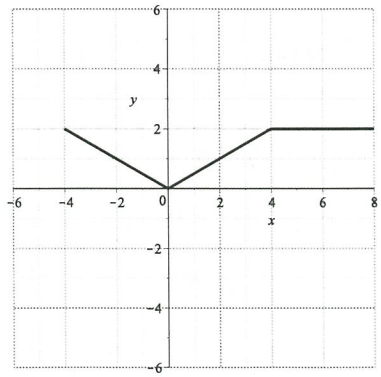
(b). Which of the following is a graph of $y = f(2x)$?

Compress horizontally by $\frac{1}{2}$

(i)



(ii)



(iii)