Name: Key

Math 121 College Algebra – Crawford

Quiz 4-A(2) +(1)

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

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

$f(2) + g(2)$

$= \underbrace{(2)^2 + 1} + \underbrace{3 - 2}$

$= 5 + 1 = \boxed{6}$

**(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)

**2.** (3 pts) Determine whether the following function is odd, even, or neither. [You must show algebraic work to justify your answer.]

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

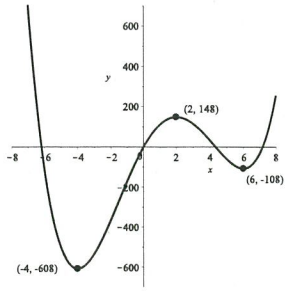
$f(-x) = -x\sqrt{4 + (-x)^2}$

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

$= -f(x)$

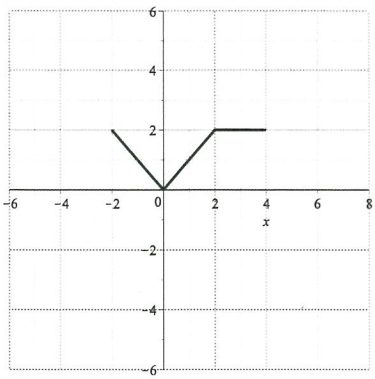
$\boxed{\text{ODD}}$

**3.** (2 pts) On which interval(s) is the following function increasing?




$\boxed{(-4, 2) \cup (6, \infty)}$

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



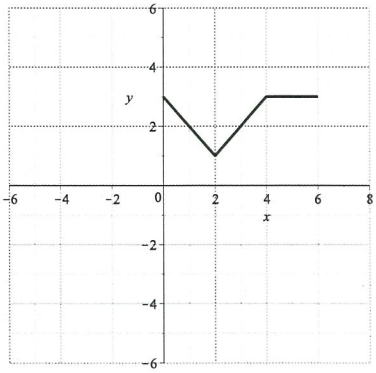

Shift right by 2

Shift up by 1

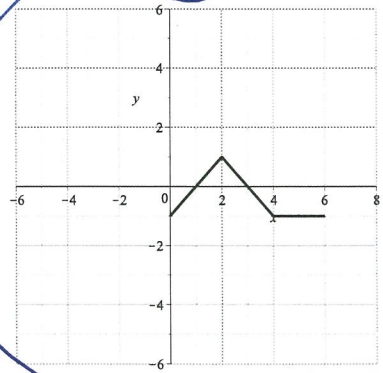
**(a).** Which of the following is a graph of $y = -f(x-2)+1$?

↳ Reflect Vertically

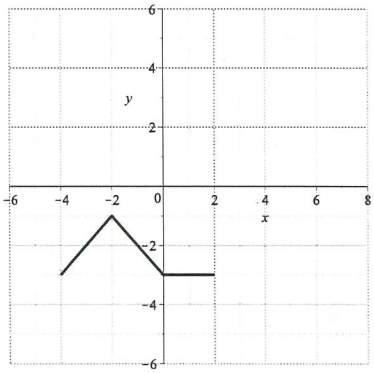
*(i)*




*(ii)*



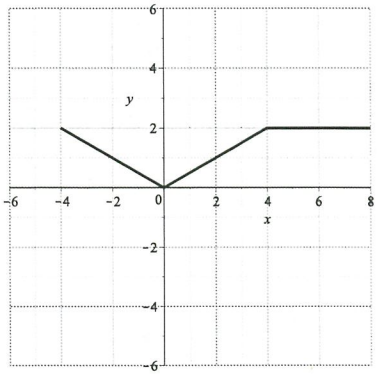

*(iii)*



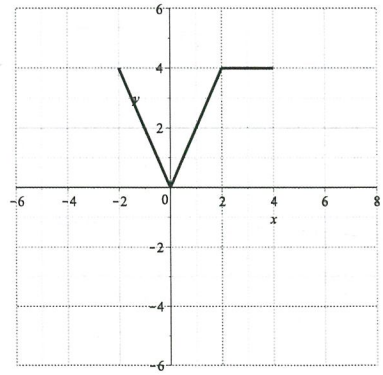

**(b).** Which of the following is a graph of $y = f(2x)$?

Compress horizontally by 2

*(i)*




*(ii)*




*(iii)*