AAT

HW 54

ch2B review

1. a) $f(4) + g(4)$

$f(4) = 3(4)+2 = 14$

$g(4) = 2(16) - 4(4) + 1 = 17$

31

B) $f(6) \cdot h(6)$

$f(6) = 3(6)+2 = 20$

$h(6) = \sqrt{6+3} = 3$

60

c) $g(f(x)) =$

$2(3x+2)^2 - 4(3x+2) + 1$

$2(9x^2+6x+6x+4) - 12x - 8 + 1$

$18x^2 + 24x + 8 - 12x - 8 + 1$

$18x^2 + 12x + 1$

d) $g(x) - f(x)$

$= 2x^2 - 4x + 1 - (3x+2)$

$= 2x^2 - 7x - 1$

e) $\frac{g(x)}{f(x)} = \frac{2x^2-4x+1}{3x+2}$

2. $x \neq -2/3$ $(-\infty, -2/3) \cup (-2/3, \infty)$

2. a) $x = \sqrt{3y+4}$

$x^2 = 3y + 4$

$x^2 - 4 = 3y$

$\frac{x^2-4}{3} = f^{-1}(x)$

b) $x = \frac{3}{2y} + 1$

$x - 1 = \frac{3}{2y}$

$2y(x-1) = 3$

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

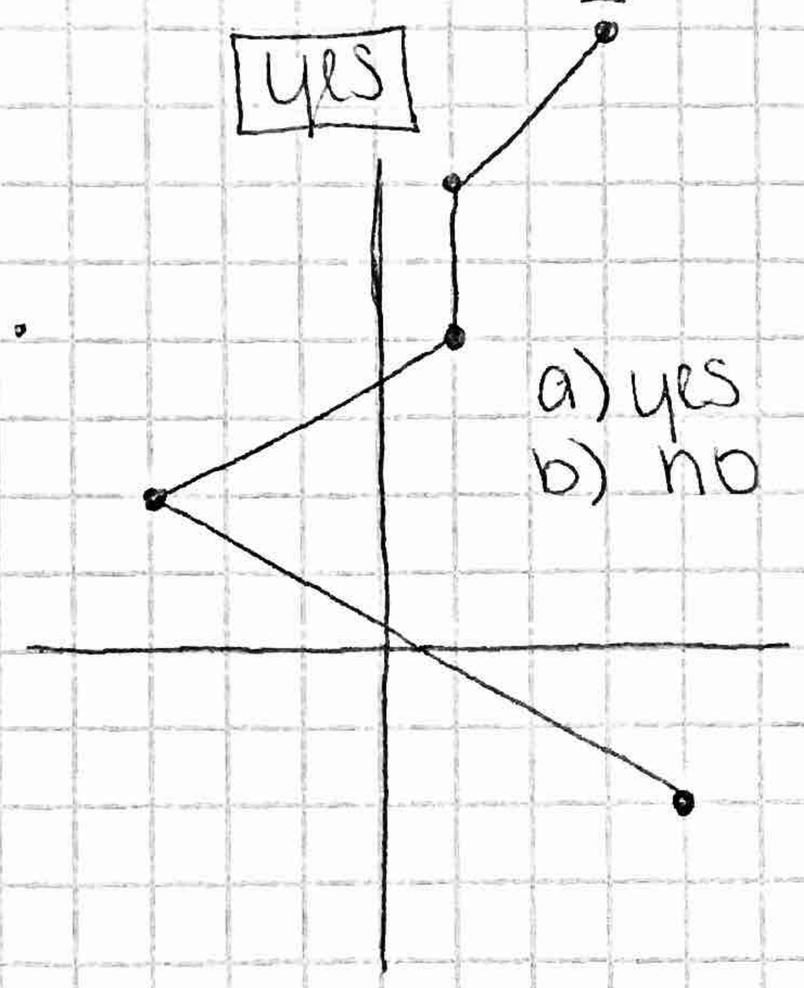
$f^{-1}(x) = \frac{3}{2(x-1)}$

3. $f(g(x)) = 2\left(\frac{x+8}{2}\right) - 8$

$= x$ ✓

$g(f(x)) = \frac{2x-8+8}{2} = x$ ✓

4.



yes

a) yes

b) no

5. a) $f(g(1)) = f(0) = \boxed{-2}$

b) $f(g(2)) = f(1) = \boxed{-1}$

c) $g(f(0)) = g(-2) = \boxed{8}$

d) $g(3) - 2f(-3)$

$4 - 2(-5)$

$= \boxed{14}$

e) $f(4) + 2g(-1)$

$2 + 2(4)$

$\boxed{10}$

6. $\frac{g(x)}{f(x)} = \frac{3x^2+7}{2x-5}$

$x \neq 5/2 \quad (-\infty, 5/2) \cup (5/2, \infty)$

7. a) $f(g(x)) = (2x+7)^2 + 5$

$= 4x^2 + 14x + 14x + 49 + 5$

$= \boxed{4x^2 + 28x + 54}$

b) $g(f(-2))$

$f(-2) = 2(-2)^2 + 5 = 9$

$g(9) = 2(9) + 7 = \boxed{25}$

c) $f(g(2))$

$g(2) = 2(2) + 7 = 11$

$f(11) = 11^2 + 5 = \boxed{126}$