Functions Review HW

Answers

p. 13/7, 8 & p. 25/31-39

(7) a) $f(0) = -2$
$f(2) = 10$
$f(3) = 25$
$f(\sqrt{2}) = 4$
$f(-2) = 10$

b) $f(0) = 0$
$f(2) = 4$
$f(-2) = -4$
$f(3) = 6$
$f(\sqrt{2}) = 2\sqrt{2}$

(8) a) $g(3) = 2$
$g(-1) = 0$
$g(\pi) = \frac{\pi+1}{\pi-1}$
$g(-1.1) = \frac{1}{21}$

b) $g(3) = 2$
$g(-1) = 3$
$g(\pi) = \sqrt{\pi+1}$
$g(-1.1) = 3$

(39) a) $h(x) = \sin x$
$g(x) = x^2$

b) $h(x) = 5 + \cos x$
$g(x) = \frac{3}{x}$

(31) $f(g(x)) = 1 - x$
$g(f(x)) = \sqrt{1-x^2}$

(32) $f(g(x)) = \sqrt{\sqrt{x^2+3} - 3}$
$g(f(x)) = \sqrt{x}$

(33) $f(g(x)) = \frac{1}{1-2x}$
$g(f(x)) = -\frac{1}{2x} - \frac{1}{2}$

(34) $f(g(x)) = \frac{x}{x^2+1}$
$g(f(x)) = \frac{1}{x} + x$

(35) $f(g(h(x))) = x^{-6} + 1$

(36) $f(g(h(x))) = \frac{x}{1+x}$
$f = g(h(x))$

(37) a) $h(x) = x + 2$
$g(x) = \sqrt{x}$

b) $h(x) = x^2 - 3x + 5$
$g(x) = |x|$

(38) a) $h(x) = x^2$
$g(x) = x^3 + 1$

b) $h(x) = x - 3$
$g(x) = \frac{1}{x}$