| Homework 8 | Section 1.6 | 1, 3, 4, 6, 7, 10, 18, 19, 21, 30 |
|---|---|---|

3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER
COMET

1) A function such that no two values in the domain map to the same value in the range
if $x_1 \neq x_2$, then $f(x) \neq f(x_2)$

Horizontal line test can be used to determine is a function is one-to-one. Line intersects graph only once.

3) not one-to-one because $f(2) = f(6) = 2.0$

4) it is one-to-one

7) not one-to-one, fails horizontal line test

10) it is one-to-one. $f(x)$ is the equation of a non-horizontal straight line and will therefore pass the horizontal line test

18) a. f is one-to-one because it passes the horizontal line test.

b. domain: $[-1, 3]$ range: $[-3, 3]$

c. $f^{-1}(2) = 0$ because $f(0) = 2$

d. $f^{-1}(0) \approx -1.7$

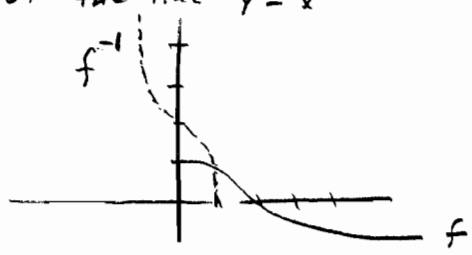
19) $C = 5/9\,(F-32)$

$9/5\,C = F-32$

$F = 9/5\,C + 32$ The inverse function expresses F as a function of C.

The domain of F = range of C.
Since $F \geq -459.67$, C must be $\geq -273.15$
∴ range of C is $C \geq -273.15$
so domain of F is $C \geq -273.15$

21) $f(x) = \sqrt{10-3x}$
$y = \sqrt{10-3x}$
$y^2 = 10-3x$
$y^2 - 10 = -3x$
$x = -1/3\,y^2 + 10/3$

$f^{-1}(x) = -1/3\,x^2 + 10/3$

30) $f^{-1}$ is the graph of f reflected about the line $y = x$