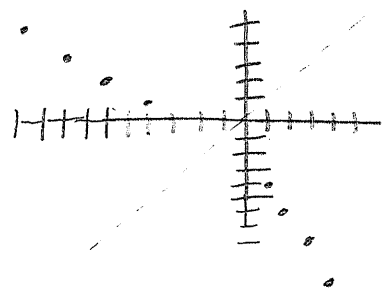


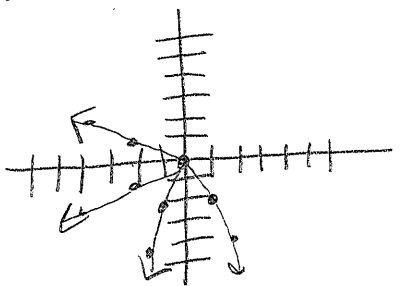
① Relation found by switching x-coordinates and y-coordinates

② a) $g = \{(-4, 1), (-6, 2), (-8, 3), (-10, 4)\}$



b) reflection over $y=x$

③ a) $f(x) = -2x^2$



f(x)		f ⁻¹ (x)	
x	y	x	y
0	0	0	0
1	-2	-2	1
-1	-2	-2	-1
2	-4	-4	2
-2	-4	-4	-2

b) Inverse not a f(x), fails VLT, repeat x's.

④ $y = \frac{1}{x^2}$

⑤ $x = 2y - 4$

$$\frac{x+4}{2} = \frac{2y}{2}$$

$$y = \frac{x+4}{2}$$

YES

⑥ $y = -x^3$

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

$$\sqrt[3]{\frac{-x}{-1}} = \sqrt[3]{-y^3}$$

$$y = \sqrt[3]{\frac{-x}{-1}}$$

$$y = -\sqrt[3]{x}$$

YES

⑦ $y = \sqrt{x}$
 $(x)^2 = (\sqrt{y})^2$

$$y = x^2$$

YES

⑧ a) $y = |x+2|$

Inverse not a f(x) due to repeat x's.

b) $y = x+2$
 Inverse is a f(x), no repeat x's.

⑨ $f(g(x)) = (\sqrt[3]{x})^3 = x$

$g(f(x)) = (\sqrt[3]{x^3}) = x$

Yes, inverse

⑩ $f(g(x)) = \frac{2}{x+5} \cdot \frac{x+5}{2} - 5 = x+5-5 = x$
 $\{x | x \neq -5\}$

$g(f(x)) = \frac{2}{\frac{2}{x}-5+5} = \frac{2 \cdot x}{2} = x$
 $\{x | x \neq 0\}$

Yes, inverse

Sec 3-8 Cont.

⑪ a) $M(x) = 10.033x$
 $U(x) = \frac{1}{10.033}x$

b) $U(20,000) = \frac{1}{10.033}(20,000)$
 $= \boxed{1993.42}$

c) $M(U(x)) = 10.033\left(\frac{1}{10.033}\right)(x) = x$
 $U(M(x)) = \frac{1}{10.033}(10.033x) = x$

YES, inverse

⑬ a) $\frac{9}{5}(C) = \left((F - 32)\frac{5}{9}\right)\frac{9}{5}$

$\frac{9}{5}C = F - 32$
 $+32$

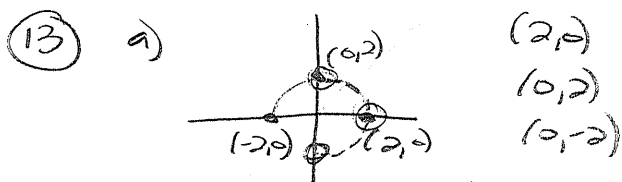
$F(C) = \frac{9}{5}C + 32$

b) $C(F(x)) = \left(\frac{9}{5}C + 32 - 32\right)^{5/9}$
 $= \left(\frac{9}{5}C\right)^{5/9} = C$

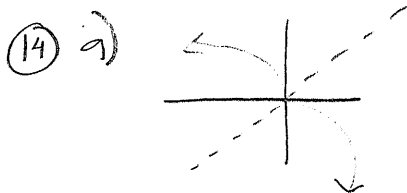
$F(C(x)) = \frac{9}{5}\left((F - 32)\frac{5}{9}\right) + 32$

$= F - 32 + 32 = \boxed{F}$

YES, inverse



b) NO 



b) YES

⑰ $w(n) = 11 + 8n$
 $w = 11 + 8n$
 $n = 11 + 8w$
 $-11 \quad -11$

$\frac{n-11}{8} = \frac{8w}{8}$

$w = \frac{n-11}{8}$

$n(w) = \frac{w-11}{8}$