PC Sec 3-5 p. 182 (1-14)

① False ② (ax, by) ③ would map all points to $(0,2)$ ④ $y = 6(f(2x))$

⑤ $f1(x) = x^3 + 3x^2 - 4x$

$f1\left(\frac{x}{3}\right) = \left(\frac{x}{3}\right)^3 + 3\left(\frac{x}{3}\right)^2 - 4\left(\frac{x}{3}\right)$

$= \frac{1}{27}x^3 + \frac{1}{3}x^2 - \frac{4}{3}x$

b) horizontal Stretch by 3

⑥ A

⑦ a) $S(x,y) = (x, \frac{1}{2}y)$ b) $x = -\frac{1}{2}, 3$

c) y-int of g is $\frac{1}{2}$ f d) $(1.25, 3.0625)$

⑧ a) $(-3,9) \to (2(-3), \frac{9}{2}) \to (-6, 9/2)$

$(0,0) \to (2(0), \frac{0}{2}) \to (0,0)$

$(\frac{1}{2}, \frac{1}{4}) \to (2(\frac{1}{2}), \frac{\frac{1}{4}}{2}) \to (1, 1/8)$

b) $y = y = \frac{1}{2}\left(\frac{1}{2}x\right)^2$

⑨ a) See graph on next page

b) $x = -1.5$, $x = -0.5$, $y = 3$

c) $(1,9)$

⑩ reflection over y-axis

⑪ horizontal Scale change by 12

⑫ a) $S(x,y) = (4x, y)$

b) $S(x,y) = (x, \frac{1}{15}y)$

c) $S(x,y) = (kx, ky)$

⑬ a) $S(x,y) = (2x, 2y)$

$\frac{y}{2} = \frac{x}{2} + \frac{1}{\frac{x}{2}}$

$2\left(\frac{y}{2}\right) = 2\left(\frac{x}{2} + \frac{2}{x}\right)$

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

b) $S(x,y) = (\frac{x}{3}, -y)$

$-1\left(\frac{y}{-1}\right) = -1\left(3x + \frac{1}{3x}\right)$

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

⑭ $(10,0) \to (2,0)$

$(-5,8) \to (-1,2)$

x is $\div$ by 5

y is $\div$ by 4

$S(x,y) \to (\frac{x}{5}, \frac{x}{4})$

$y = x^3 - 8$

$\frac{4y}{4} = \frac{(5x)^3}{4} - \frac{8}{4}$

$\boxed{y = \frac{125x^3}{4} - 2}$

⑭ Above ↗

PC Sec 3-5 HW

Name_____

9) a) $S(x,y) \rightarrow \left(\frac{1}{2}x, 3y\right)$