PC Sec 2-4 p. 107 (1-12)

① a) $y = 4,156,119(1.0113)^1 = 4,203,000$ people

b) $P(n) = 4,156,119(1.0113)^n$

c) $y = 4,156,119(1.0113)^{12} = 4,752,000$ people

② a) expon. $a = 11$ $b = 4$ b) not expon.

c) not expon. d) expon. $a = 1$. $b = 0.6$

③ a) $A = 4000(1.08)^t$

b) $A = 4000(1.08)^{44} = 118,223.89$

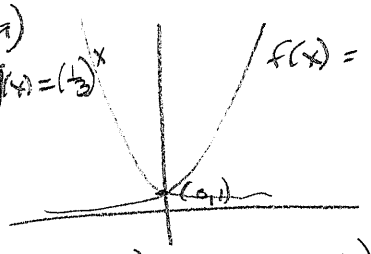
c) $\frac{118,223.89}{1.08^{48}} = \frac{X(1.08)^{48}}{1.08^{48}}$

$X = \$2740.12$

④ $a = 3$ $b = 2$

⑤ a) fair b) decay

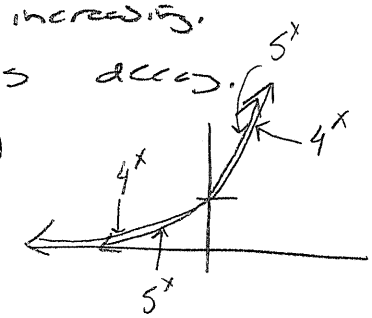
⑥ a)



b) • Same domain and range, same y-int. $g(x)$ is decreasing. $f(x)$ is increasing.

c) $g(x)$ is decay.

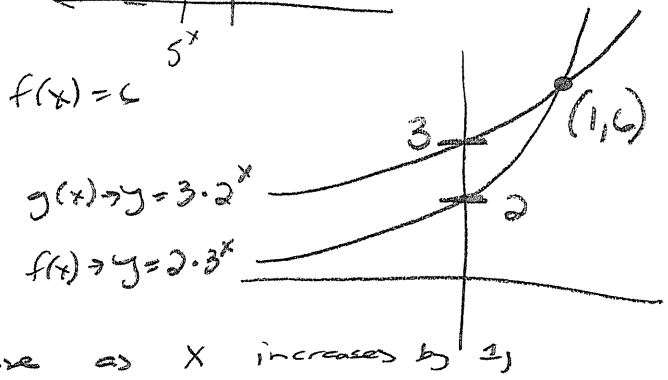
⑦ a) $g(x)$ b) $f(x)$ c)



⑧ a) $g(x)$

b) when $x = 1$ $g(x) = 6$ and $f(x) = 6$

c) $f(x) < g(x)$ when $x < 1$



⑨ a) B

b) $y = 12$ when $x = 0$ is the initial value

• Growth factor is $\frac{1}{2}$ because as x increases by 1, y is cut in half.

⑩ a) $y = 1,322,000,000(1.006)^8 = 1,386,804,687$ people

b) $y = 1,322,000,000(1.009)^8 = 1,420,236,877$ people

$33,432,190$ greater

(11) a) $y = 20(.9)^x$

$y = 20(.9)^1 = 18 \text{ ft}^3$

$y = 20(.9)^2 = 16.2 \text{ ft}^3$

$y = 20(.9)^3 = 14.58 \text{ ft}^3$

b) $20(0.9)^n$

c) $20(.9)^6 = 10.63 \text{ ft}^3$ – False, more than half NOT decayed.

(12) $y = x^2$

a) Quadratic

b) R: $\{y \mid y \geq 0\}$

c) y-int: 0

d) No asymptote

$y = 2^x$

a) Exponential

b) R: $\{y \mid y > 0\}$

c) y-int: 1

d) asymptote: X-axis $y = 0$