Pg. 606 ; # 4, 6, 8, 9, 12, 13, 14

HOMEWORK (LESSON 12.2)

4.

n	0	1	2	3	4
f(n)	0.1	0.3	0.9	2.7	8.1

common ratio : $\frac{0.3}{0.1} = 3$

Recursive : $f(0) = 0.1$, $f(n) = 3\, f(n-1)$, $n > 0$

Explicit : $f(n) = 0.1(3)^n$

6.

n	1	2	3	4	5
f(n)	1000	100	10	1	0.1

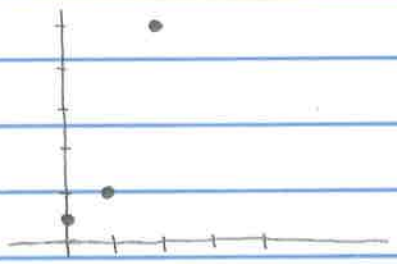
common ratio : $\frac{100}{1000} = \frac{1}{10}$

Recursive : $f(1) = 1000$, $f(n) = \frac{1}{10} f(n-1)$, $n > 1$

Explicit : $f(n) = 1000\left(\frac{1}{10}\right)^{n-1}$

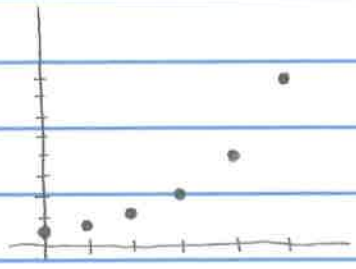
8. $f(n) = \left(\frac{1}{2}\right) \cdot 4^n$, $n \geq 0$

n	0	1	2	3	4
f(n)	$\frac{1}{2}$	2	8	32	128



9. $f(n) = 2 \cdot f(n-1)$, $n \geq 1$, $f(0) = 0.5$

n	0	1	2	3	4	5
f(n)	$\frac{1}{2}$	1	2	4	8	16



12.

n	0	1	2	3	4
f(n)	1	2	4	8	16

Recursive: $f(0) = 1$, $f(n) = 2f(n-1)$, $n > 0$

Explicit: $f(n) = 1(2)^{n-0}$

$f(n) = 2^n$

$f(4) = 2^4$

$f(4) = 16$ **16 teams**

13.

n	0	1	2	3
f(n)	1024	256	64	16

Recursive: $f(0) = 1024$, $f(n) = \frac{1}{4}f(n-1)$, $n > 0$

Explicit: $f(n) = 1024\left(\frac{1}{4}\right)^n$

$1 = 1024\left(\frac{1}{4}\right)^n$

$\frac{1}{1024} = \left(\frac{1}{4}\right)^n$

$4^{-5} = \left(4^{-1}\right)^n$

$-5 = -n$

$n = 5$ **5 games**

14. (A).

n	0	1	2	3	4
f(n)	1	2	4	8	16

Recursive: $f(0) = 1$, $f(n) = 2f(n-1)$, $n > 0$

Explicit: $f(n) = 1(2)^n$

$f(6) = 2^6$ $f(12) = 2^{12}$

$f(6) = 64$ $f(12) = 4096$

64 ancestors **4096 ancestors**

(B).

n	1	2	3	4	5
f(n)	1	2	4	8	16

Explicit: $f(n) = 1(2)^{n-1}$

$f(n) = 2^{n-1}$