Math 131- Dr. Miller - Exam #2, Version #1 - 3/23/05

Answers

1. See notes and homework.
2. (a) $a_1 = 3$ and $a_n = 2 \cdot a_{n-1}$
   (b) $a_1 = 2$ and $a_n = a_{n-1} + 2n$
3. (a) $a_n = 2^n \cdot 1.5$ or $a_n = 3 \cdot 2^{n-1}$
   (b) $a_n = n(n+1)$
4. $a_1 = 2 \quad a_2 = 3 \quad a_3 = 6 \quad a_12 \quad a_9$
5. (a) $a_3 = a_2 \cdot r$, or $3600 = 3000r$, so $r = 1.2$. Then $a_1 \cdot 1.2 = a_2 = 3000$, so $a_1 = 2500$
   (b) I.e., does $9331 = 233 + 7n$ for some whole number n? No: $9331 - 233$ isn't divisible by 7.
6. 3,392,033
7. See notes, text.
8. (a) Yes, because its graph passes the VLT.
   (b) No, because it assigns several images to the same domain element.
9. (a) No, because its graph fails the HLT
   (b) Yes, because no co-domain element will be "used" more than once.
10. (a) $g \circ f(3) = u$
    (b) $h \circ h(3)7$
    (c) $h \circ f(3)$ does not exist because h's domain is $\mathbf{N}$, a set of numbers, and $f(3) = t$ is not a natural number.