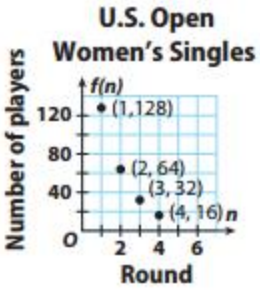
6. The graph shows the number of players in the first four rounds of the U.S Open women's singles tennis tournament.



a. Write an explicit rule for the sequence of players in each round.

_____

b. How many rounds are there in the tournament? (*Hint:* In the last round, only two players are left.)

_____

7. Write a recursive rule and an explicit rule for the geometric sequence 12, 3, $\frac{3}{4}$, $\frac{3}{16}$, …

Recursive rule: _____

Explicit rule: _____

Each rule represents a geometric sequence. If the given rule is recursive, write it as an explicit rule. If the rule is explicit, write it as a recursive rule. Assume that $f(1)$ is the first term of the sequence.

8. $f(n) = 6(3)^{n-1}$

_____

_____

9. $f(1) = 10; f(n) = f(n-1) \cdot 8$ for $n \geq 2$

_____

_____

Write an explicit rule for each geometric sequence based on the given terms from the sequence. Assume that the common ratio r is positive.

10. $a_2 = 50$ and $a_4 = 12.5$

_____

11. $a_3 = 24$ and $a_5 = 384$

_____

12. An economist predicts that the cost of food will increase by 4% per year for the next several years.

a. Use the economist's prediction to write an explicit rule for a geometric sequence that gives the cost in dollars of a box of cereal in year n that costs \$3.20 in year 1.

_____

b. What is the fourth term of the sequence, and what does it represent in this situation?

_____