Arithmetic Sequences – Practice Problems

Name: _____

Period: _____

Arithmetic Sequences

1. Given the first four terms of the sequence, find the common difference. Then, write a recursive and explicit rule (formula).

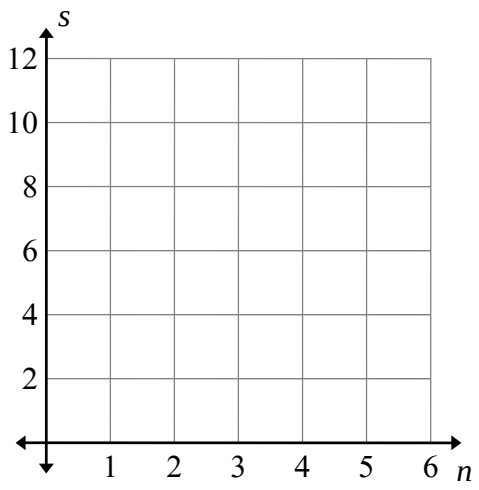
16, 13, 10, 7

a. Common Difference: (1pt) _____

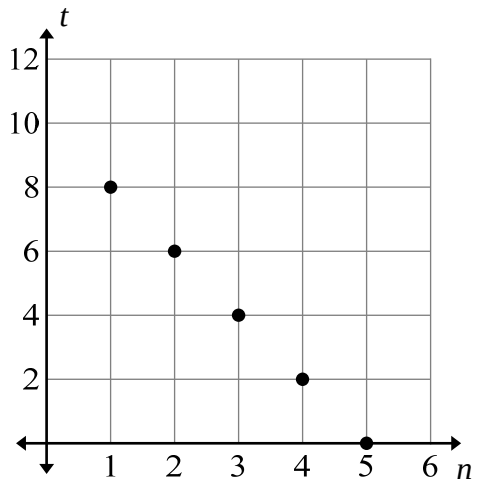
b. Recursive: (1pt)_____

c. Explicit: (1pt)_____

2. A sequence is defined as $s(n) = n + 3$. Graph the first 5 terms of the sequences. (3pts)



3. The graph shows the first five terms of an arithmetic sequence whose domain is the positive integers. (1pt)



Which is a definition of the sequence?

a. $t(n) = 8 - n$

b. $t(n) = 8 - 2n$

c. $t(n) = 10 - n$

d. $t(n) = 10 - 2n$

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4. Becky has one piece of paper. She cuts the paper in half and then has two pieces. She cuts these in half to get four pieces. The process continues. Which describes how many pieces she has at each step? (1pt)

   e. $p(1)=1;\ p(n)=2p(n-1),$ for $n \geq 2$

   f. $p(1)=1;\ p(n)=\frac{1}{2}p(n-1),$ for $n \geq 2$

   g. $p(1)=1;\ p(n)=p(n-1)+1,$ for $n \geq 2$

5. Mrs. Jackson said the explicit formula was $f(n)=4+3(n-1)$. Mrs. Powell said the explicit formula was $f(n)=3n+1$. Who is correct? Explain.

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6. Given the first term and the common difference of an arithmetic sequence, find the first five terms and the recursive and explicit formula. $f(1)=-34,\ d=-10$

7. Given a term in an arithmetic sequence and the common difference, find the first five terms and the explicit formula. $a_{37}=249,\ d=8$

8. After knee surgery, your trainer tells you to return to your jogging probram slowly. He suggests jogging for 12 minutes each day for the first week. Each week thereafter, he suggests that you increase that time by 6 minutes per day. How many weeks will it be before you are up to jogging 60 minutes per day?

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REVIEW:

9. Find the error in the following simplification and give the correct answer.

$$4x(7x-3)-4x$$
$$=28x^2-12x-4x$$
$$=28x^2-16x^2$$
$$=12x^2$$

10. Solve for x:

a. $16=7-x$

b. $\frac{1}{3}x+8=21$

c. $\frac{2}{5}(x-1)=6$

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11. For the expression $x^3+4x^2-5x^2+2x-20$,

How many terms are there?

What is the *coefficient* on the 3rd term?

List the *like terms.*