

Answer the following individually. Then log into Navnet & enter your answers.

1. Factor by grouping: $(k+1)(5k+8) + (k+1)^2k$

$$(k+1)[5k+8 + (k+1)k] =$$

$$(k+1)[k^2+k + 5k+8] =$$

$$(k+1)(k^2+6k+8) = (k+1)(k+2)(k+4)$$

2. Are the terms in this sum **arithmetic**, geometric or neither? $4 + 7 + 10 + 13 + 16 + 19$

3. Are the terms in this sum arithmetic, **geometric** or neither? $3 + 9 + 27 + 81 + 243$

4. What is the *third* term in sequence defined by the following rule:

$$\begin{cases} a_1 = -4 \\ a_{n+1} = (-1)^n \cdot 3a_n, n \geq 1 \end{cases}$$

$$a_1 = -4$$

$$a_2 = (-1)^1 \cdot 3(-4) = 12$$

$$a_3 = (-1)^2 \cdot 3(12) = 36$$

5. Use differences to determine if the following sequence will have a quadratic, cubic or quartic explicit rule.

1, 14, 51, 124, 245, ...



6. Find the explicit rule for the sequence in #5.

$$a_n = 2n^3 - n$$

7. An arithmetic sequence has -105.2 for its 32nd term and a common difference of -2.6. Find the first term of the sequence. *Show your work.*

$$-105.2 = a_1 + (32-1)(-2.6)$$

$$\vdots \qquad \vdots$$

$$a_1 = -24.6$$

8. A geometric sequence has 555,555 for its 12th term and a common ratio of 5. Find the first term of the sequence. *Show your work. Round your answer to the nearest 10,000th.*

$$555,555 = g_1 (5)^{12-1}$$

$$\vdots \qquad \vdots$$

$$g_1 \approx .0114$$