1 Which arithmetic sequence has a common
difference of 4?
1) \{0, 4n, 8n, 12n, \ldots\} 2) \{n, 4n, 16n, 64n, \ldots\}
3) \{n + 1, n + 5, n + 9, n + 13, \ldots\}
4) \{n + 4, n + 16, n + 64, n + 256, \ldots\}

2 Given the sequence: \(x, (x + y), (x + 2y), \ldots\)
Which expression can be used to determine the
common difference of this sequence?
1) \(x - (x + y)\) 2) \((x + 2y) - (x + y)\) 3) \(\frac{x}{x + y}\)
4) \(\frac{(x + 2y)}{(x + y)}\)

3 What is the common difference of the arithmetic
sequence 5, 8, 11, 14?
1) 8 2) -3 3) 3 4) 9

4 What is the common difference of the arithmetic
sequence below?
\(-7x, -4x, -x, 2x, 5x, \ldots\)
1) -3 2) -3x 3) 3 4) 3x

5 What is the common difference in the sequence
2a + 1, 4a + 4, 6a + 7, 8a + 10, \ldots?
1) 2a + 3 2) -2a - 3 3) 2a + 5 4) -2a + 5

6 Given the following three sequences:
I. 2, 4, 6, 8, 10, \ldots
II. 2, 4, 8, 16, 32, \ldots
III. \(a, a + 2, a + 4, a + 6, a + 8, \ldots\)
Which ones are arithmetic sequences?
1) I and II, only
2) I and III, only
3) II and III, only
4) I, II, and III

7 Find the common difference in the arithmetic
sequence, \(a_n\), in which \(a_1 = 16\) and \(a_9 = 36\).

8 What is the common ratio of the geometric
sequence shown below?
\(-2, 4, -8, 16, \ldots\)
1) \(-\frac{1}{2}\) 2) 2 3) -2 4) -6

9 The common ratio of the sequence \(-\frac{1}{2}, \frac{3}{4}, \frac{9}{8}\)
is
1) \(-\frac{3}{2}\) 2) \(-\frac{2}{3}\) 3) \(-\frac{1}{2}\) 4) \(-\frac{1}{4}\)

10 What is the common ratio of the sequence
\(\frac{1}{64} a^5 b^3, \frac{3}{32} a^3 b^4, \frac{9}{16} a^2 b^5, \ldots\)?
1) \(-\frac{3b}{2a^2}\) 2) \(\frac{6b}{a^2}\) 3) \(\frac{3a^2}{b}\)
4) \(-\frac{6a^2}{b}\)

11 What is the common ratio of the geometric
sequence whose first term is 27 and fourth term is
64?
1) \(\frac{3}{4}\) 2) \(\frac{64}{81}\) 3) \(\frac{4}{3}\) 4) \(\frac{37}{3}\)

12 Determine and state whether the sequence
1, 3, 9, 27, \ldots displays exponential behavior.
Explain how you arrived at your decision.
F.I.F.A.3: Sequences 1a
Answer Section

1. ANS: 3  REF: 011110a2
2. ANS: 2  REF: 011610a2
3. ANS: 3  REF: 061001a2
4. ANS: 4  REF: 061411a2
5. ANS: 1
   \[(4a + 4) - (2a + 1) = 2a + 3\]
   REF: 011401a2
6. ANS: 2  REF: 061919ai
7. ANS:
   \[
   \frac{36 - 16}{9 - 1} = \frac{20}{8} = 2.5
   \]
   REF: 081630a2
8. ANS: 3
   \[
   \frac{-4}{2} = -2
   \]
   REF: 011304a2
9. ANS: 1
   \[
   \frac{\frac{3}{4}}{\frac{1}{2}} = \frac{3}{2}
   \]
   REF: 011508a2
10. ANS: 2
    \[
    \frac{-3}{32}a^3b^4 \quad \frac{1}{64}a^5b^3 = \frac{6b}{a^2}
    \]
    REF: 061326a2
11. ANS: 3
    \[
    27r^{4 - 1} = 64
    \]
    \[
    r^3 = \frac{64}{27}
    \]
    \[
    r = \frac{4}{3}
    \]
    REF: 081025a2
ANS:
Yes, because the sequence has a common ratio, 3.

REF: 081726ai