

F.IF.A.3: Sequences 1b

- Which arithmetic sequence has a common difference of 4?
 - $\{0, 4n, 8n, 12n, \dots\}$
 - $\{n, 4n, 16n, 64n, \dots\}$
 - $\{n + 1, n + 5, n + 9, n + 13, \dots\}$
 - $\{n + 4, n + 16, n + 64, n + 256, \dots\}$
- Given the sequence: $x, (x + y), (x + 2y), \dots$
Which expression can be used to determine the common difference of this sequence?
- What is the common difference of the arithmetic sequence 5, 8, 11, 14?
- What is the common difference of the arithmetic sequence below?
 $-7x, -4x, -x, 2x, 5x, \dots$
- What is the common difference in the sequence $2a + 1, 4a + 4, 6a + 7, 8a + 10, \dots$?
- Find the common difference in the arithmetic sequence, a_n , in which $a_1 = 16$ and $a_9 = 36$.
- What is the common ratio of the geometric sequence shown below?
 $-2, 4, -8, 16, \dots$
- The common ratio of the sequence $-\frac{1}{2}, \frac{3}{4}, -\frac{9}{8}$ is
- What is the common ratio of the sequence $\frac{1}{64}a^5b^3, -\frac{3}{32}a^3b^4, \frac{9}{16}ab^5, \dots$?
- What is the common ratio of the geometric sequence whose first term is 27 and fourth term is 64?
- Determine and state whether the sequence 1, 3, 9, 27, ... displays exponential behavior. Explain how you arrived at your decision.

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Answer Section

1 ANS: 3 REF: 011110a2

2 ANS:
 $(x + 2y) - (x + y)$

REF: 011610a2

3 ANS:
3

REF: 061001a2

4 ANS:
 $3x$

REF: 061411a2

5 ANS:
 $2a + 3$
 $(4a + 4) - (2a + 1) = 2a + 3$

REF: 011401a2

6 ANS:
 $\frac{36 - 16}{9 - 1} = \frac{20}{8} = 2.5$

REF: 081630a2

7 ANS:
 -2
 $\frac{4}{-2} = -2$

REF: 011304a2

8 ANS:
 $-\frac{3}{2}$
 $\frac{3}{4} = -\frac{3}{2}$
 $-\frac{1}{2}$

REF: 011508a2

9 ANS:

$$\frac{-\frac{6b}{a^2} - \frac{3}{32}a^3b^4}{\frac{1}{64}a^5b^3} = -\frac{6b}{a^2}$$

REF: 061326a2

10 ANS:

$$\frac{4}{3}$$

$$27r^{4-1} = 64$$

$$r^3 = \frac{64}{27}$$

$$r = \frac{4}{3}$$

REF: 081025a2

11 ANS:

Yes, because the sequence has a common ratio, 3.

REF: 081726ai