Describe Linear Sequences

Aim: I can describe linear sequences.

Here is a linear sequence: **3, 5, 7, 9**

The step is **2**

The 1st term is **3**

The 4th term is **9**

The 5th term will be **11**

The 10th term will be **21**

Complete the following:

1. Here is a linear sequence: **2, 5, 8, 11**

   The step is ____

   The 1st term is ____

   The 4th term is ____

   The 5th term will be ____

   The 10th term will be ____

2. Here is a linear sequence: **4, 6, 8, 10**

   The step is ____

   The 1st term is ____

   The 4th term is ____

   The 5th term will be ____

   The 10th term will be ____

3. Here is a linear sequence: **2, 5, 8, 11**

   The step is ____

   The 1st term is ____

   The 4th term is ____

   The 5th term will be ____

   The 10th term will be ____

4. Here is a linear sequence: **5, 9, 13, 17**

   The step is ____

   The 1st term is ____

   The 4th term is ____

   The 5th term will be ____

   The 10th term will be ____

5. Here is a linear sequence: **1, 6, 11, 16**

   The step is ____

   The 1st term is ____

   The 4th term is ____

   The 5th term will be ____

   The 10th term will be ____

6. Here is a linear sequence: **7, 13, 19, 25**

   The step is ____

   The 1st term is ____

   The 4th term is ____

   The 5th term will be ____

   The 10th term will be ____

Here is a linear sequence: **2, 5, 8, 11**

The step is **3**

The first term is **2**

The formula for the first term = the step **– 1**

Complete the following:

7. Here is a linear sequence: **4, 6, 8, 10**

   The step is ____

   The first term is ____

   The formula for the first term = _____

8. Here is a linear sequence: **5, 9, 13, 17**

   The step is ____

   The first term is ____

   The formula for the first term = _____

9. Here is a linear sequence: **3, 8, 13, 18**

   The step is ____

   The first term is ____

   The formula for the first term = _____

10. Here is a linear sequence: **9, 15, 21, 27**

    The step is ____

    The first term is ____

    The formula for the first term = _____

11. Here is a linear sequence: **2, 7, 12, 17**

    The step is ____

    The first term is ____

    The formula for the first term = _____

12. Here is a linear sequence: **6, 13, 20, 27**

    The step is ____

    The first term is ____

    The formula for the first term = _____

13. Here is a linear sequence: **8, 12, 16, 20**

The step is ____

The first term is ____

The formula for the first term = _____

14. Here is a linear sequence: **7, 16, 25, 34**

The step is ____

The first term is ____

The formula for the first term = _____

15. Here is a linear sequence: **10, 17, 24, 31**

The step is ____

The first term is ____

The formula for the first term = _____

Describe Linear Sequences **Answers**

1. The step is **3**
   The 1st term is **2**
   The 4th term is **11**
   The 5th term will be **14**
   The 10th term will be **29**

2. The step is **2**
   The 1st term is **4**
   The 4th term is **10**
   The 5th term will be **12**
   The 10th term will be **22**

3. The step is **3**
   The 1st term is **2**
   The 4th term is **11**
   The 5th term will be **14**
   The 10th term will be **29**

4. The step is **4**
   The 1st term is **5**
   The 4th term is **17**
   The 5th term will be **21**
   The 10th term will be **41**

5. The step is **5**
   The 1st term is **1**
   The 4th term is **16**
   The 5th term will be **21**
   The 10th term will be **46**

6. The step is **6**
   The 1st term is **7**
   The 4th term is **25**
   The 5th term will be **31**
   The 10th term will be **61**

7. The step is **2**
   The first term is **4**
   The formula for the first term is **the step + 2**

8. The step is **4**
   The first term is **5**
   The formula for the first term is **the step + 1**

9. The step is **5**
   The first term is **3**
   The formula for the first term is **the step – 2**

10. The step is **6**
    The first term is **9**
    The formula for the first term is **the step + 3**

11. The step is **5**
    The first term is **2**
    The formula for the first term is **the step – 3**

12. The step is **7**
    The first term is **6**
    The formula for the first term is **the step – 1**

13. The step is **4**
    The first term is **4**
    The formula for the first term is **the step + 4**

14. The step is **9**
    The first term is **7**
    The formula for the first term is **the step – 2**

15. The step is **7**
    The first term is **10**
    The formula for the first term is **the step + 3**

Describe Linear Sequences

Aim: I can describe linear sequences.

Here is a linear sequence: **3, 8, 13, 18**

The step is **5**

The 1st term is **3**

The formula for the first term = **step - 2**

The nth term = **5n – 2**

The 16th term = **78** (5 × 16) -2 = 78

Complete the following:

1. Here is a linear sequence: **7, 11, 15, 19**

   The step is ____

   The 1st term is ____

   The formula for the first term = _____

   The nth term = _____

   The 12th term = ____

2. Here is a linear sequence: **8, 11, 14, 17**

   The step is ____

   The 1st term is ____

   The formula for the first term = _____

   The nth term = _____

   The 12th term = ____

3. Here is a linear sequence: **9, 11, 13, 15**

   The step is ____

   The 1st term is ____

   The formula for the first term = _____

   The nth term = _____

   The 15th term = ____

4. Here is a linear sequence: **1, 7, 13, 19**

   The step is ____

   The 1st term is ____

   The formula for the first term = _____

   The nth term = _____

   The 11th term = ____

5. Here is a linear sequence: **4, 11, 18, 25**

   The step is ____

   The 1st term is ____

   The formula for the first term = _____

   The nth term = _____

   The 9th term = ____

6. Here is a linear sequence: **2, 11, 20, 29**

   The step is ____

   The 1st term is ____

   The formula for the first term = _____

   The nth term = _____

   The 14th term = ____

For your own linear sequences, complete the following:

7. Write a linear sequence: _____

   The step is ____

   The 1st term = ____

   The formula for the first term = _____

   The nth term = _____

   The 14th term = ____

8. Write a linear sequence: _____

   The step is ____

   The 1st term = ____

   The formula for the first term = _____

   The nth term = _____

   The 17th term = ____

9. Write a linear sequence: _____

   The step is ____

   The 1st term = ____

   The formula for the first term = _____

   The nth term = _____

   The 18th term = ____

10. Write a linear sequence: _____

    The step is ____

    The 1st term = ____

    The formula for the first term = _____

    The nth term = _____

    The ____th term =

11. Write a linear sequence: _____

    The step is ____

    The 1st term = ____

    The formula for the first term = _____

    The nth term = _____

    ____th

12. Write a linear sequence: _____

    The step is ____

    The 1st term = ____

    The formula for the first term = _____

    The nth term = _____

    ____th ____

Describe Linear Sequences **Answers**

1. The step is **4**
   The 1st term is **7**
   The formula for the first term is **step + 3**
   The nth term = **4n + 3**
   The 12th term = **51**

2. The step is **3**
   The 1st term is **8**
   The formula for the first term is **step + 5**
   The nth term = **3n + 5**
   The 12th term = **41**

3. The step is **2**
   The 1st term is **9**
   The formula for the first term is **step + 7**
   The nth term = **2n + 7**
   The 15th term = **37**

4. The step is **6**
   The 1st term is **1**
   The formula for the first term is **step - 5**
   The nth term = **6n - 5**
   The 11th term = **61**

5. The step is **7**
   The 1st term is **4**
   The formula for the first term is **step - 3**
   The nth term = **7n - 3**
   The 9th term = **60**

6. The step is **9**
   The 1st term is **2**
   The formula for the first term is **step – 7**
   The nth term = **9n - 7**
   The 14th term = **119**

Questions 7 - 12.
Accept any reasonable answer.

Describe Linear Sequences

Aim: I can describe linear sequences.

Here is a linear sequence: **4, 7, 10, 13**

The 5th term is **16**

The nth term is **3n + 1**

The 16th term is **49**

Complete the following:

1. Here is a linear sequence: **1, 6, 11, 16**

   The 5th term is ____

   The nth term is _____

   The 12th term is ____

2. Here is a linear sequence: **7, 11, 15, 19**

   The 5th term is ____

   The nth term is _____

   The 18th term is ____

3. Here is a linear sequence: **2, 5, 8, 11**

   The 5th term is ____

   The nth term is _____

   The 16th term is ____

4. Here is a linear sequence: **4, 13, 22, 31**

   The 5th term is ____

   The nth term is _____

   The 11th term is ____

5. Here is a linear sequence: **4, 11, 18, 25**

   The 5th term is ____

   The nth term is _____

   The 14th term is ____

6. Here is a linear sequence: **11, 19, 27, 35**

   The 5th term is ____

   The nth term is _____

   The 15th term is ____

7. Here is a linear sequence: **2, 8, 14, 20**

   The 5th term is ____

   The nth term is _____

   The 13th term is ____

8. Here is a linear sequence: **12, 17, 22, 27**

   The 5th term is ____

   The nth term is _____

   The 19th term is ____

9. Here is a linear sequence: **5, 16, 27, 38**

   The 5^{th} term is ____

   The n^{th} term is _____

   The 12^{th} term is ____

10. Here is a linear sequence: **17, 29, 41, 53**

    The 5^{th} term is ____

    The n^{th} term is _____

    The 15^{th} term is ____

Challenge

Write an explanation, with an example, of how to turn a linear sequence into an expression for the n^{th} term.

Compare your answer with a partner. How can you improve your explanation?

Describe Linear Sequences **Answers**

1. The 5th term is **21**
   The nth term is **5n - 4**
   The 12th term is **56**

2. The 5th term is **23**
   The nth term is **4n + 3**
   The 18th term is **75**

3. The 5th term is **14**
   The nth term is **3n - 1**
   The 16th term is **47**

4. The 5th term is **40**
   The nth term is **9n - 5**
   The 11th term is **94**

5. The 5th term is **32**
   The nth term is **7n - 3**
   The 14th term is **95**

6. The 5th term is **43**
   The nth term is **8n + 3**
   The 15th term is **123**

7. The 5th term is **26**
   The nth term is **6n - 4**
   The 13th term is **74**

8. The 5th term is **32**
   The nth term is **5n + 7**
   The 19th term is **102**

9. The 5th term is **49**
   The nth term is **11n - 6**
   The 12th term is **126**

10. The 5th term is **65**
    The nth term is **12n + 5**
    The 15th term is **185**