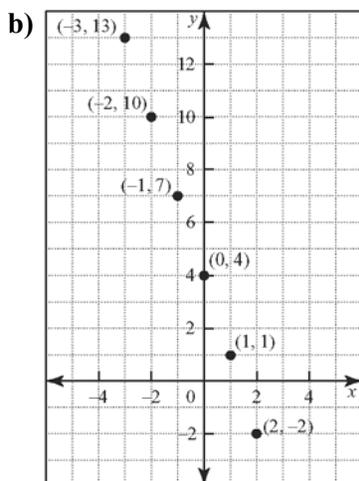
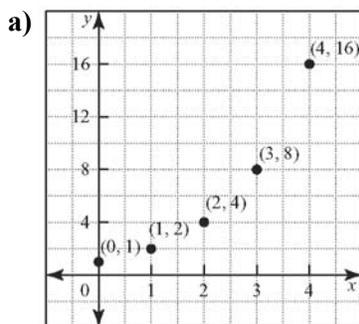


6.1 Sequences as Discrete Functions**BLM 6-4**

1. The graphs shown display the terms in a sequence. Write each sequence in function notation.



2. Describe the pattern in each sequence and write the next three terms.

a) $-2, 0, 2, 4, 6, \dots$

b) $1, 2, 3, 5, 8, 13, \dots$

c) $\frac{1}{27}, \frac{1}{9}, \frac{1}{3}, 1, 3, \dots$

d) $3, 3\sqrt{3}, 9, 9\sqrt{3}, 27, \dots$

3. Consider the sequence $6, 12, 18, 24, 30, \dots$. Is each of the following numbers in the sequence? Explain your answers.

a) 126

b) 206

c) 110

d) 276

4. The value of Randy's used car decreases by 15% each year after it was purchased. The purchase price in 2007 was \$8000.

- a) Create a table of values to show the value of the car from 2007 to 2012, using $t = 0$ for 2007.

- b) Graph the information from the table of values created in part a).
c) Would you expect this trend to continue? Explain.

5. Determine the explicit formula for the n th term of each sequence.

a) $3, 6, 9, 12, \dots$ b) $3, 5, 7, 9, \dots$

c) $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \dots$ d) $\frac{1}{5}, \frac{3}{7}, \frac{5}{9}, \frac{7}{11}, \dots$

6. For each part in question 5, use the explicit formula to determine the

- i) 8th term
ii) 16th term
iii) 24th term

7. A new factory makes 100 items in the first week of operation. As the workers get used to the machinery, it is expected that the number of items produced will increase by 20% per week.

- a) Write the sequence that represents the number of items produced for the first four weeks of operation.

- b) If this trend continues, how many items will be produced in week

- i) 6?
ii) 10?
iii) 12?

- c) Extend the pattern to determine when they can expect to produce 1000 items in a week.

8. A new golf course sold 125 memberships in the first week that it was open. Each week after the first, they sold an additional 35 memberships.

- a) Write the first four terms of the sequence that represents the total number of memberships sold as a function of the week number.

- b) Write this as an explicit formula for the n th week.

- c) Use this formula to determine the total number of memberships sold after

- i) 7 weeks
ii) 10 weeks

- d) How long will it take for the course to sell its targeted 615 memberships?

