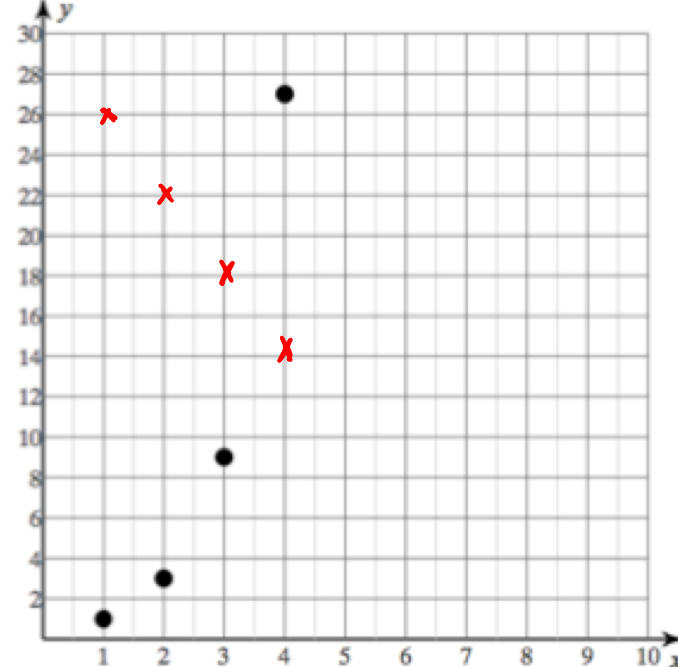


6.1 Sequences

PRACTICE

USE THE GRAPH BELOW TO ANSWER QUESTIONS #1 - 5.

Sully plotted the following sequence.



1) Write the first five terms of the sequence.

1, 3, 9, 27, 81

2) Describe how you go from one term of the sequence to the next.

I multiplied each term by three to get to the next term in the sequence.

3) Find S_7 .

729

4) Find S_{10} .

19,683

5) Describe how the graph changes from one term to the next.

The rate of change gets larger by a magnitude of three each time.

USE THE FOLLOWING SEQUENCE FOR #6-10: Kelly's sequence: 26, 22, 18, 14,

6) Describe how you go from one term of the sequence to the next.

I subtracted four from the previous term to get the next term in the sequence.

7) Find $K(12)$.

-18

8) Find K_{15}

-30

9) Graph the terms of the sequence as an ordered pair $(n, K(n))$ on the graph ABOVE.

SEE ABOVE GRAPH

10) Describe how the graph changes from one term to the next.

The rate of change goes down by four units each time. Its constant and forms a straight line on the graph.

USE THE FOLLOWING SEQUENCE FOR #11-15: Brust's sequence: 20, 50, 80, 110

11) Describe how you go from one term of the sequence to the next.

I added 30 from the previous term to get to the next term in the sequence.

12) Find $B(11)$.

320

13) Find B_{15}

440

14) Graph the terms of the sequence as an ordered pair $(n, B(n))$ on the graph ON THE NEXT PAGE.

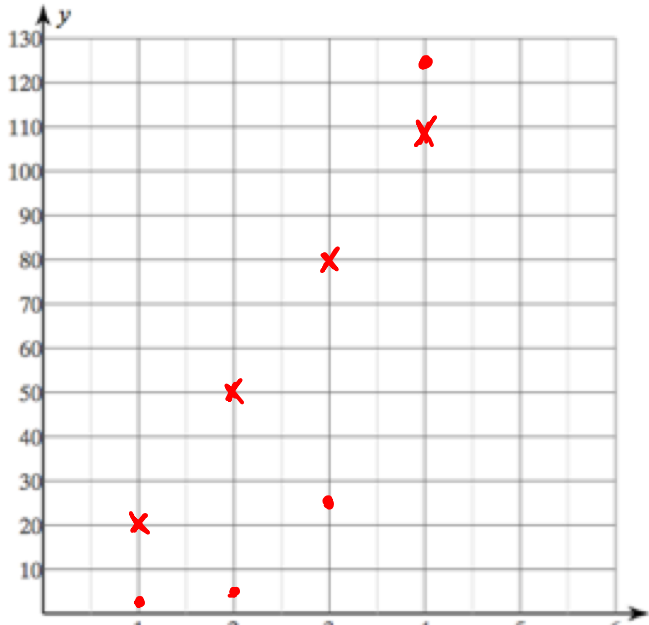
Marked with x's on the next

page graph.

15) Describe how the graph changes from one term to the next.

The rate of change on the graph remains the same from each point to the next, going up 30 units each time.

USE THE FOLLOWING SEQUENCE FOR #16-20: Bean's sequence: 1, 5, 25, 125



16) Describe how you go from one term of the sequence to the next.

I multiplied the previous term of the sequence by 5 to get to the next term.

17) Find B_8

78,125

18) Find $B(11)$

9,765,625

19) Graph the terms of the sequence as an ordered pair $(n, B(n))$ on the graph.

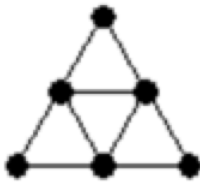
20) Describe how the graph changes from one term to the next.

The rate of change on the graph increases much more each time. It starts slowly and then increases dramatically.

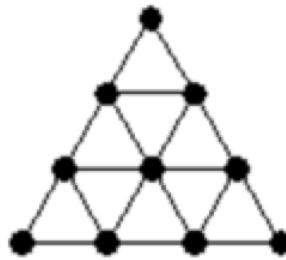
Use the following pattern for #21-25.



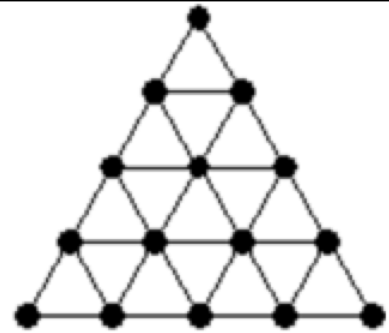
1 layer
3 dots



2 layers
6 dots



3 layers
10 dots



4 layers
15 dots

21) What are the first 6 terms of the sequence?

3, 6, 10, 15, 21, 28
 $8 \rightarrow 14$ $14 \rightarrow 20$ $20 \rightarrow 27$

22) Find T_8

$29 + 8 = 36$
 $36 + 9 = 45$

45

22) Find $T(10)$

$45 + 10 = 55$
 $55 + 11 = 66$

66

24) Describe how you go from one term of the sequence to the next.

I noticed that the differences between each term increased by one each time, so I added the next number in the differences to the sequence to get the new term.

25) Sketch how you think the graph will look. Construct a viable argument for why you think it will look that way.



I think the graph will curve slightly because the rate of change between each term in the sequence is not the same, so it will curve. However, it won't curve as much as it did in the other ones because it only goes up slightly.

Directions: Solve the system.

$$\begin{array}{r} 26) \quad -3x - 4y = 5 \\ \quad \quad 3x + 2y = -8 \end{array}$$

$$-2y = -3$$

$$y = \frac{3}{2}$$

$$\boxed{\left(-\frac{11}{3}, \frac{3}{2}\right)}$$

$$\begin{array}{l} -3x - 4\left(\frac{3}{2}\right) = 5 \\ -3x - 6 = 5 \end{array}$$

$$\frac{-3x}{-3} = \frac{11}{-3}$$

$$x = -\frac{11}{3}$$

Directions: Solve the equation.

$$27) \quad \frac{x-5}{10} = (-2)10$$

$$\begin{array}{l} x-5 = -20 \\ +5 \quad +5 \end{array}$$

$$\boxed{x = -15}$$

Directions: Find x.

28) 25, 55, x, 90, 10. The mean is 50.

$$\frac{25 + 55 + 90 + 10 + x}{5} = 50$$

$$5\left(\frac{180+x}{5}\right) = 50(5)$$

$$\begin{array}{l} 180 + x = 250 \\ -180 \quad -180 \end{array}$$

$$\boxed{x = 70}$$

Directions: Find the product.

29) $(x-7)(2x+4)$

$$2x^2 + 4x - 14x - 28$$

$$\boxed{2x^2 - 10x - 28}$$