

PA7-2 Describing Patterns

1. Write the amount by which each term in the sequence increases (goes up) or decreases (goes down). Use a plus sign (+) if the sequence increases and a minus sign (-) if it decreases.

a) 3 $\overset{+4}{\circ}$, 7 $\overset{-2}{\circ}$, 5 $\overset{+7}{\circ}$, 12 $\overset{-4}{\circ}$, 8

b) 2 \circ , 6 \circ , 5 \circ , 9 \circ , 4

c) 1 \circ , 5 \circ , 8 \circ , 18 \circ , 24

d) 4 \circ , 8 \circ , 7 \circ , 1 \circ , 10

e) 32 \circ , 37 \circ , 45 \circ , 39 \circ , 36

f) 58 \circ , 61 \circ , 54 \circ , 62 \circ , 57

2. Match each sequence (A, B, C, and D) with the correct description.

- a) A. increases by 5 each time
B. increases by different amounts

B 8, 12, 18, 22, 24

A 7, 12, 17, 22, 27

- b) A. increases by 9 each time
B. increases by different amounts

___ 10, 19, 28, 37, 46

___ 6, 13, 18, 26, 31

- c) A. decreases by different amounts
B. decreases by the same amount

___ 21, 20, 18, 15, 11

___ 13, 10, 7, 4, 1

- d) A. decreases by 11 each time
B. decreases by different amounts

___ 51, 40, 29, 18, 7

___ 48, 35, 22, 15, 3

- e) A. increases by 5 each time
B. decreases by different amounts
C. increases by different amounts

___ 18, 23, 29, 33, 35

___ 27, 24, 20, 19, 16

___ 24, 29, 34, 39, 44

- f) A. increases and decreases
B. increases by the same amount
C. decreases by different amounts
D. decreases by the same amount

___ 31, 29, 25, 13, 9

___ 10, 14, 9, 6, 5

___ 18, 16, 14, 12, 10

___ 8, 11, 14, 17, 20




3. Make 3 sequences that match the descriptions. Ask a partner to match each sequence with the correct description. (Write the sequences out of order!)




A. increases by 4 each time




B. decreases by different amounts




C. increases and decreases

4. These sequences were made by multiplying each term by the same number. Find the number, then extend the pattern.




a) 1  , 2  , 4  , _____ , _____




b) 5  , 10  , 20  , _____ , _____




c) 2  , 6  , 18  , _____ , _____




d) 7  , 70  , 700  , _____ , _____

5. These sequences were made by dividing each term by the same number. Find the number, then extend the pattern.




a) 400  , 200  , 100  , _____ , _____

b) 96  , 48  , 24  , _____ , _____




c) 500  , 100  , 20  , _____ , _____




d) 1 600  , 400  , 100  , _____ , _____




6. Write a rule for each pattern. Use the words **add**, **subtract**, **multiply**, or **divide**.

a) 3  , 6  , 12  , 24

Start at 3 and multiply by 2

b) 4  , 7  , 10  , 13

c) 28  , 25  , 22  , 19

d) 27  , 9  , 3  , 1

e) 2, 10, 50, 250

f) 32, 16, 8, 4

g) 30 000, 3 000, 300, 30

h) 10, 200, 4 000, 80 000

7. Describe each pattern as **increasing**, **decreasing**, or **repeating**.

a) 2, 4, 8, 16, 32, 64 _____

b) 3, 7, 1, 3, 7, 1 _____

c) 29, 27, 25, 23, 22 _____

d) 2, 6, 10, 14, 17 _____

e) 11, 9, 6, 11, 9, 6 _____

f) 61, 56, 51, 46, 41 _____

8. Write the rule for each repeating pattern.

a) 3, 7, 1, 3, 7, 1 3, 7, 1, then repeat

b) 0, 5, 0, 5, 0, 5 _____

c) 11, 9, 6, 11, 9, 6 _____

d) M, M, N, M, M, N _____

PA7-3 T-tables

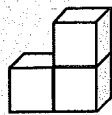


Figure 1

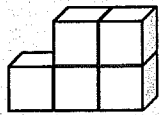


Figure 2

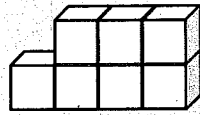
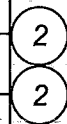


Figure 3

Figure	Number of Blocks
1	3
2	5
3	7



number of blocks added each time

The rule for the pattern in the number of blocks is: *Start at 3 and add 2 each time.*

1. Here are more patterns with blocks. How many blocks do you add to make each new figure? Write your answer in the circles. Then write a rule for the pattern.

a)

Figure	Number of Blocks
1	3
2	7
3	11

Rule: Start at ____ and add ____.

b)

Figure	Number of Blocks
1	2
2	6
3	10

Rule:

c)

Figure	Number of Blocks
1	2
2	4
3	6

Rule:

d)

Figure	Number of Blocks
1	1
2	6
3	11

Rule:

e)

Figure	Number of Blocks
1	5
2	9
3	13

Rule:

f)

Figure	Number of Blocks
1	12
2	18
3	24

Rule:

2. Extend the pattern. How many blocks would be used in Figure 6?

a)

Figure	Number of Blocks
1	2
2	7
3	12

b)

Figure	Number of Blocks
1	4
2	7
3	10

c)

Figure	Number of Blocks
1	3
2	8
3	13

3. Amy makes an increasing pattern with blocks. After making the 3rd figure, she has only 14 blocks left. Does she have enough blocks to complete the 4th figure?

a)

Figure	Number of Blocks
1	8
2	10
3	12

Yes No

b)

Figure	Number of Blocks
1	7
2	10
3	13

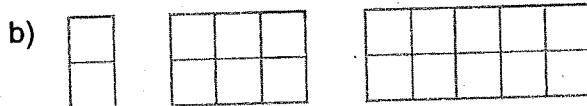
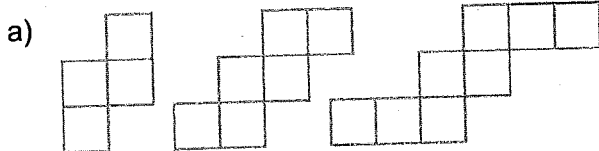
Yes No

c)

Figure	Number of Blocks
1	1
2	5
3	9

Yes No

4. Make a table to show how many squares are needed to make the 5th figure in each pattern.



5. Claude buys a plant that is 12 cm high. After 1 week, it is 17 cm high. After 2 weeks it is 22 cm high.

a) How much does the plant grow each week?

b) How high will it be after 3 weeks?

c) After how many weeks will the plant be 42 cm high?

Weeks	Height of Plant (cm)
0	12
1	17
2	22