

# PA6-5: Introduction to T-tables

Claude creates an **increasing pattern** with squares. He records the number of squares in each figure in a chart or T-table. He also records the number of squares he adds each time he makes a new figure:

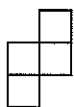


Figure 1

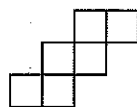


Figure 2

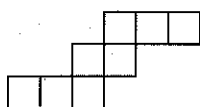


Figure 3

Figure	# of Squares
1	4
2	6
3	8

2 ← Number of squares added each time  
2 ←

The number of squares in the figures are 4, 6, 8, ...

Claude writes a rule for this number pattern:

**RULE:** Start at 4 and add 2 each time.

1. Claude makes other increasing patterns with squares.

How many squares does he add to make each new figure?

Write your answer in the circles provided. Then write a rule for the pattern:

a)

Figure	Number of Squares
1	2
2	8
3	14

Rule:

b)

Figure	Number of Squares
1	3
2	9
3	15

Rule:

c)

Figure	Number of Squares
1	1
2	6
3	11

Rule:

d)

Figure	Number of Squares
1	1
2	8
3	15

Rule:

e)

Figure	Number of Squares
1	5
2	13
3	21

Rule:

f)

Figure	Number of Squares
1	11
2	22
3	33

Rule:

g)

Figure	Number of Squares
1	3
2	12
3	21

Rule:

h)

Figure	Number of Squares
1	6
2	13
3	20

Rule:

i)

Figure	Number of Squares
1	7
2	13
3	19

Rule:

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

a)

Figure	Number of Squares
1	2
2	10
3	18

b)

Figure	Number of Squares
1	4
2	9
3	14

c)

Figure	Number of Squares
1	7
2	11
3	15

3. After making Figure 3, Claude only has 35 squares left. Does he have enough squares to complete Figure 4?

a)

Figure	Number of Squares
1	4
2	13
3	22

YES      NO

b)

Figure	Number of Squares
1	6
2	17
3	28

YES      NO

c)

Figure	Number of Squares
1	9
2	17
3	25

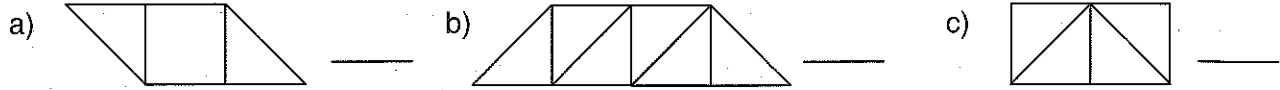
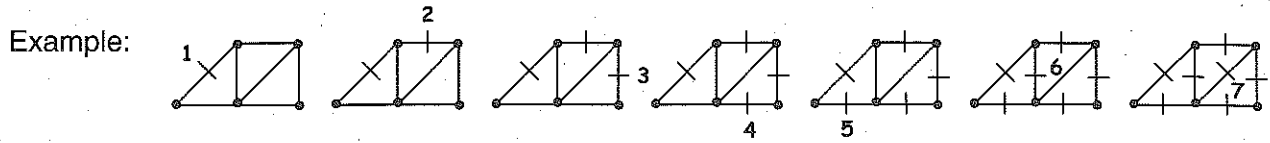
YES      NO

4. In your notebook, make a T-table to show how many shapes will be needed to make the fifth figure in each pattern:

a)

b)

1. Count the number of line segments (lines that join pairs of dots) in each set of figures by marking each line segment as you count, as shown in the example:  
 HINT: Count around the outside of the figure first.



2. Continue the pattern below, then complete the chart:

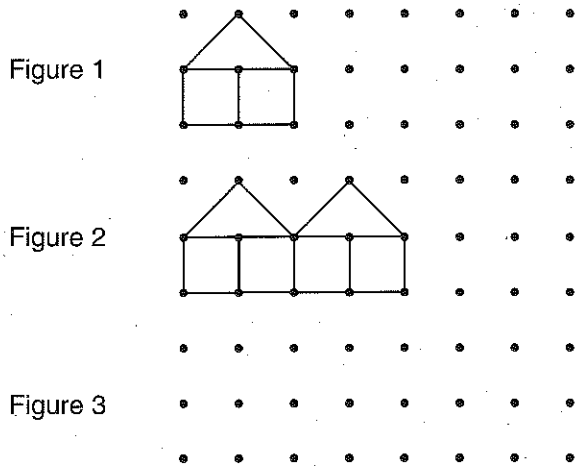


Figure	Number of Line Segments
1	
2	
3	

- a) How many line segments would Figure 4 have? \_\_\_\_\_
- b) How many line segments would you need to make a figure with 5 triangles? \_\_\_\_\_

3. Continue the pattern below, then complete the chart:

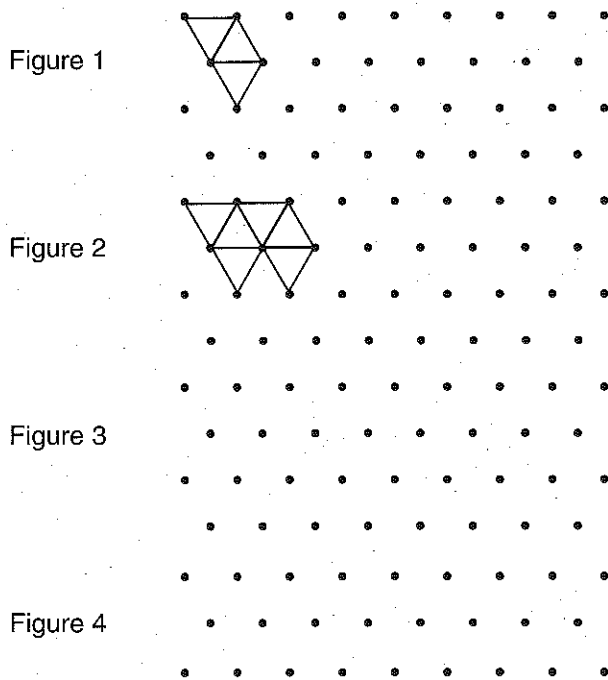


Figure	Number of Triangles	Number of Line Segments

- a) How many line segments would Figure 5 have? \_\_\_\_\_
- b) How many triangles would Figure 6 have? \_\_\_\_\_

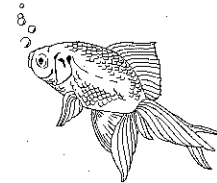
4. The snow is 17 cm deep at 5 pm.  
4 cm of snow falls each hour.  
How deep is the snow at 9 pm?

Hour	Depth of Snow
5 pm	17 cm

5. Philip has \$42 in savings by the end of July.  
Each month he saves \$9. How much will he have by the end of October?

Month	Savings
July	\$42

6. Sarah's fish tank is leaking.  
At 6 pm, there are 21 L of water in the tank.  
At 7 pm, there are 18 L and at 8 pm, there are 15 L.



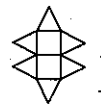
- a) How many litres of water leak out each hour?  
\_\_\_\_\_
- b) How many litres will be left in the tank at 10 pm?  
\_\_\_\_\_
- c) How many hours will it take for all the water to leak out?  
\_\_\_\_\_

Hour	Amount of water in the tank
6 pm	21 L
7 pm	18 L
8 pm	15 L
9 pm	
10 pm	

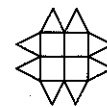


7. A store rents snowboards at \$7 for the first hour and \$5 for every hour after that.  
How much does it cost to rent a snowboard for 6 hours?

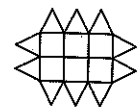
8. a) How many triangles would April need to make a figure with 10 squares?



1



2



3

- b) April says that she needs 15 triangles to make the sixth figure. Is she correct?

9. Merle saves \$55 in August. She saves \$6 each month after that.  
Alex saves \$42 in August. He saves \$7 each month after that.  
Who has saved the most money by the end of January?

# PA6-7: T-tables (Advanced)

The **terms** of a sequence are the numbers or items in the sequence.

This is **term number 4** since it is in the fourth position.

A **term number** gives the position of each item.

4, 7, 10, 13, 16



1. Draw a T-table for each sequence to find the given term:

a) Find the 5<sup>th</sup> term: 3, 8, 13, 18, ... b) Find the 7<sup>th</sup> term: 42, 46, 50, 54, ...

2. Ben says that the 6<sup>th</sup> term of the sequence 7, 13, 19, ... is 53. Is he correct? Explain.

3. Find the missing terms in each sequence.

a) 8, 12, \_\_\_\_\_, 20

b) 11, \_\_\_\_\_, \_\_\_\_\_, 26

c) 15, \_\_\_\_\_, \_\_\_\_\_, 24, \_\_\_\_\_

d) 59, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 71

4.

Term Number	Term
1	13
2	15
3	18
4	19
5	21

Term Number	Term
1	25
2	30
3	34
4	37
5	41

Each T-Table was made by adding a number repeatedly.

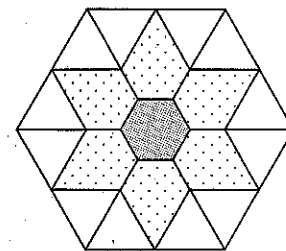
Find and correct any mistakes in the tables.

5. Rita made an ornament using a hexagon (shaded figure), pentagons (dotted) and triangles.

a) How many pentagons does she need to make 7 ornaments?

b) Rita used 6 hexagons to make ornaments.  
How many triangles and pentagons did she use?

c) Rita used 36 pentagons. How many triangles did she use?



6. A newborn Siberian Tiger cub weighs 1 300 g. It gains 100 g a day.  
A newborn baby weighs 3 300 g. It gains 200 g every week.

a) A cub and a baby are born on the same day. Who weighs more after...

i) 2 weeks?

ii) 6 weeks?

b) After how many weeks would the cub and the baby have the same weight?

