MAKING CONNECTIONS: SEQUENCES & FUNCTIONS

1) Find the equation that can be used to represent the table of values below.

x	1	2	3	4	5
y	6	12	18	24	30

Equation:_____

2) A science class plants seedlings that are 3 cm tall and monitors their growth over a four week period. The average height of the seedlings at the end of each of the four weeks is given in the table below.

Week	Height(cm)
1	5
2	7
3	9
4	11

A. What is the independent variable? _____

B. What is the dependent variable? _____

C. What does the ordered pair (3, 9) mean for this function? _____

D. If this pattern continues, what function would represent this relationship?_____

E. In what week would the height be 17 cm?_____

F. What would the height be in 12 weeks?_____

**3) The first three terms in a sequence are shown below.**

$$5, 2, -1, …$$

a) Find the algebraic expression that represents the relationship between a term in the sequence above and its position, n, in the sequence.

b) Find the 18th term in the sequence.

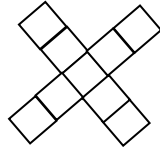**4) The first five terms in a pattern are shown below.**

$$-0.5, -0.25, 0, 0.25, 0.5, …$$

If the pattern continues, what expression could be used to find the nth term?
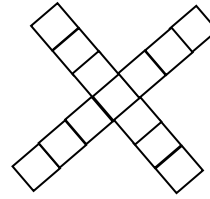
5) The squares below show a pattern.
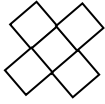
Stage 1

Stage 2

Stage 3

a) Find the expression that could be used to determine the number of squares at stage n.

b) How many squares would there be in the 7th stage?

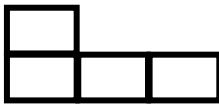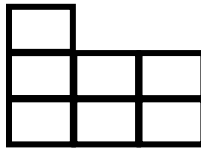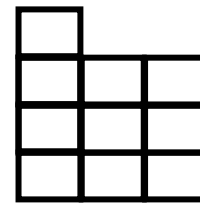**6) The figures below show a pattern.**

Figure 1

Figure 2

Figure 3

a) Find the expression that could be used to determine the number of squares in the nth figure.

b) How many squares would there be in the 7th figure?