

Name: _____

Grade 7 Unit 1: Patterns & Relations

Sheet 13

- 1) For each of the following charts,
 i) Fill in the missing numbers.
 ii) Write the relations as an algebraic expression
 iii) Describe the relation in words (Term = ____ times term # Plus or Minus Constant)

a)

Term Number	1	2	3	4	5	6
Term	10		16		22	

b)

Term Number	1	2	3	4	5	6
Term	10		12		14	

c)

Term Number	1	2	3	4	5	6
Term	3	7	11	15	19	23

d)

Term Number	1	2	3	4	5	6
Term	7	13	19	25	31	37

e)

Term Number	1	2	3	4	5	6
Term	10	20	30	40	50	60

- 2) a) For Part 1d) find the value of the 15th term. (Use algebraic expression and a calculator to get answer)

b) For part 1e) find the value for the 12th term. (Use algebraic expression to get answer)

- 3) Kevin is planning a wedding and the cost to rent the hall is \$250. The cost of food is \$20 per person .
 a. Complete a chart of Kevin’s total cost related to number of people for the first 6 people.

	1	2	3	4	5	6

- b. Write the algebraic relation of total cost to # of people using “p” as the variable.
 c. Explain the relation in words.

- 4) a) Write the perimeter of a regular octagon as an algebraic expression if each side has a length of “n”.

b) Find the perimeter if the length of the side of the regular octagon is 6 cm.

- 5) Ted is having a party. The cost to rent the hall is \$25 and the cost for food is \$10 per person.
 a. Create a chart that relates the number people to the total cost.

# of people, p	1	2	3	4	5	6
Total Cost						

- b. Write out the relations as an algebraic expression.
 c. Write the relation in words.
 d. What is the total cost when 90 people are invited? (Show work)

e. What is the total cost when 25 people are invited? (Show work)

f. What is the new expression if the cost of food doubles?

6) **SIMPLIFY** then evaluate each of the following: (MUST COLLECT LIKE TERMS FIRST)

a. $4t + 7p - 2p + 6t - t + 5$, $p = 2$ & $t = 7$

b) $5ab + 6b - 10 + 6b$; $a = 2$ & $b = 5$

c) $5r + 6w + 7r + 2w - 4r$; $r = 3$ & $w = 2$

7) Write an algebraic expression for each of the following. (Remember to define your letter for the variable)

a) Product of 14 and a number.

b) A number subtract from 26

c) A number increased by 3

d) Triple a number plus 21

e) A number reduced by 8

f) 31 subtract a number

8) Write the expression as words

a. $d - 11$

b. $100 - b$

c. $3n + 6$

9) a)

Input f	Output f + 14
1	
2	
3	
4	
5	

9) b)

Input k	Output 11k - 1
1	
2	
3	
4	
5	