Quick Review

➤ You can describe a number pattern using the term number.

Term number	1	2	3	4	5	6
Term	8	16	24	32	40	48

We can write an algebraic expression for the term when we know the term number.
Each term is 8 times the term number.
Let n represent any term number.
Then the term is represented by $8 \times n$, or $8n$.

When you compare or *relate* a variable to an expression that contains the variable, you have a *relation*.
The variable is n.
The expression is $8n$.
The relation is: $8n$ is related to n

➤ The table and relation above can represent the total number of beats in a music score when there are 8 beats in each bar.

Number of bars of music	1	2	3	4	5	6
Total number of beats	8	16	24	32	40	48

You can use the relation to find the number of beats in 17 bars of music.
Substitute $n = 17$ in the expression $8n$.
$$8n = 8(17)$$
$$= 136$$
There are 136 beats in 17 bars of music.

Practice

1. Complete each chart.

a)

Term number	1	2	3	4	5	6
Term	5		15		25	

b)

Term number	1	2	3	4	5	6
Term	5		7		9	

c)

| Term number	1	2	3	4	5	6
Term	3		9		15	

2. Every day, Ray rides his bike 12 km around Stanley Park.
Complete the chart to show the total distance Ray travelled.

Number of days	1	2	3	4	5	6
Distance (km)	12					72

3. Write a relation for the pattern rule for each pattern.
Use the relation to find the 12th term.
Let n represent any term number.

a) 6, 12, 18, 24, ... _____

b) 10, 11, 12, 13, ... _____

4. a) Write a relation for the perimeter of a regular pentagon

with side length n centimetres. _____
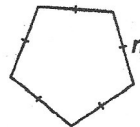
b) What is the perimeter of a regular pentagon with side length 9 cm?

_____

5. Ally is organizing an end-of-term party.
The cost to rent the hall is $100. The cost of food is $8 per person.
a) Write a relation for the total cost of the party, in dollars, for n people.

_____

b) How much will the party cost if:

i) 20 people attend? _____

ii) 50 people attend? _____

c) How does the relation in part a change in each case?
i) The cost of food doubles.

_____

ii) The cost of the food increases by $2 per person.

_____

d) For each scenario in part c, find the cost when 40 people attend.

i) _____

ii) _____