

**Strand 2:** Algebra**Sub Strand:** Patterns

**Content Learning Outcome:** Explore and describe number patterns based on mathematical rules and explain the pattern used.

**Lesson Notes****Example:**

A	3	2	5	7	4	8
B	8	5	14	X	Y	Z

Find the rule, write down and complete the pattern.

To find the rule, we need to see what we do with numbers in first row (A) to get the numbers in second row (B). In order to get the correct rule, same rule has to be applied with all the numbers in first row to get the numbers in second row.

In this case we are able to have two rules for the first number (3) to get 8. These are:

- $A+5=B$ ; We substitute A with 3, so it will be  $3+5=8$ . Now we check this same rule with the second column. It will be  $2+5=7$ , here the B value is different, therefore this rule is **incorrect**.
- $(Ax3)-1=B$ ; We substitute A with 3, so it will be  $(3x3)-1=B$ . when we work out these types of operation, we solve the bracket first, therefore it will be:

$$(3x3)-1=B$$

$9-1=8$  Here our answer and B value is same therefore we use the same rule with other numbers in first row to get the values of second row. If the answer and B value is same, that will be the rule. In this example our rule is  **$(Ax3)-1=B$** .

When:

A is 7

A is 4

A is 8

$$(7x3)-1=B$$

$$(4x3)-1=B$$

$$(8x3)-1=B$$

$$21-1=B$$

$$12-1=B$$

$$24-1=B$$

$$20=B \text{ Therefore, } \underline{\underline{X=14}}$$

$$11=B \text{ Therefore, } \underline{\underline{Y=11}}$$

$$23=B \text{ Therefore, } \underline{\underline{Z=23}}$$

**Activities**

Find the rule, write it down and complete the pattern.

1.

A	4	6	8	9
P	11	17	E	F

Rule: \_\_\_\_\_

2.

X	3	4	6	10
Y	7	10	A	B

Rule: \_\_\_\_\_

3.

C	3	9	5	13
Y	10	28	P	Q

Rule: \_\_\_\_\_