**Section 1.4 - Transformations**

RECALL:

a -vertical stretch/compression: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 - reflection in \_\_\_\_-axis if negative

k - horizontal stretch/compression: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 -reflection in \_\_\_\_-axis if negative

 \*\* We say there is a horizontal stretch/compression of 1/k \*\* (NEW FROM GRADE 11)

d - horizontal translation

 - left if there is a \_\_\_\_\_\_\_ in the bracket – this means that d is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 - right if there is a \_\_\_\_\_\_\_\_\_ in the bracket – this means that d is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

c - vertical translation

 - up if \_\_\_\_\_\_\_\_\_\_\_\_\_

 -down if \_\_\_\_\_\_\_\_\_\_\_\_\_

**TURNING POINT: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Example 1:** State the function that would result from vertically stretching y=f(x) by a factor of 4 and horizontal stretching by a factor of 5 and then translating the graph 3 units to the left.

**Example 2:** Use transformations to help you describe the characteristics of the transformed function

 Then sketch the transformed function.

**Example 3:** Graph the function f(x) = sin(x) and the transformed function where 0˚ ≤x≤360˚. State the impact of the transformations on the domain, range, and intervals of increase/decrease, and turning points of the transformed function.

**Example 4:**

Describe the order in which you would apply the transformations defined by

to .

Then state the impact of the transformations on the domain, range, intervals of increase/decrease, and end behaviours of the transformed function.

**Example 5:** Describe the order in which you would apply the transformations defined by

 to .

State the impact of the transformations on the domain, range, intervals of increase/decrease, and end behaviours of the transformed function.

State the equation of the transformed function.