2 Functions

Activity: Transformations of functions (Student version)

The original graphs of and  are shown in each graph below.

• On the same set of axes, sketch BY HAND (without your GDC) the transformed graphs of *y* = f(*x*) and *y* = g(*x*) given in the left-hand column.

• Label the coordinates of any important points.

• Check to see if your sketches are correct by CHECKING on your GDC (again, try to think about it and do it by hand at first).

• Describe and explain the general transformation in the row below.

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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| *y* = f(*x*) + 1  *y* = g(*x*) + 1 | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |

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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| *y* = 2f(*x*)  *y* = 2g(*x*) | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |

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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
|  | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |
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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| *y* = f(*x* + 1)  *y* = g(*x* + 1) | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |
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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| *y* = f(2*x*)  *y* = g(2*x*) | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |

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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| *y* = f(–*x*)  *y* = g(–*x*) | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |
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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
|  | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |
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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| CHALLENGE: | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |

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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| CHALLENGE: | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |

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| Specific transformation description | Transformed graph of *y* = f(*x*) | Transformed graph of *y* = g(*x*) |
| PUTTING IT ALL TOGETHER: | A close up of a screen  Description automatically generated | A picture containing text, shoji, crossword puzzle  Description automatically generated |
| Description of general transformation with a brief explanation |  | |