***Summary: Transformations of Quadratic, Reciprocal and Root Functions and Using the Mapping Rule***

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| **Parent Function** | **Transformed Function** | **Characteristics** |
|  |  | Domain: Range: , if is positive , if is negative |
|  |  | Domain: Range: Vertical Asymptote: Horizontal Asymptote:  |
|  |  | Domain: , if Range: , if Domain: , if Range: , if  |
|  **Mapping Rule** |
| **Parent Functions** | **Transformed Function - Characteristics** | **Graph** |
|

|  |  |
| --- | --- |
|  |  |
| 0.5 | 2 |
| 1 | 1 |
| 2 | 0.5 |
| -0.5 | -2 |
| -1 | -1 |
| -2 | -0.5 |

 | * Vertical stretch factor of 2
* Horizontal shift 4 right
* Vertical shift 3 up
 |  |
| **Parent Functions** | **Transformed Function – Characteristics** | **Graph** |
|

|  |  |
| --- | --- |
|  |  |
| 0 | 0 |
| 1 | 1 |
| 4 | 2 |
| 9 | 3 |

Hard to graph fractions so best use whole numbers | Rewrite: * is negative so graph will face to the left & c=-2 so domain will have every x value less than and equal to -2
* is positive and so the range will have every y-value greater than and equal to 0
* Vertical compression factor of
* Horizontal shift 2 left
* Reflection y- axis and horizontal compression factor ()

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1. Describe the transformations (ii) Determine the values of each parameter, domain and range, mapping rule
2. Graph each function.

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| **Parent Functions** | **Transformed Function – Characteristics** | **Graph** |
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