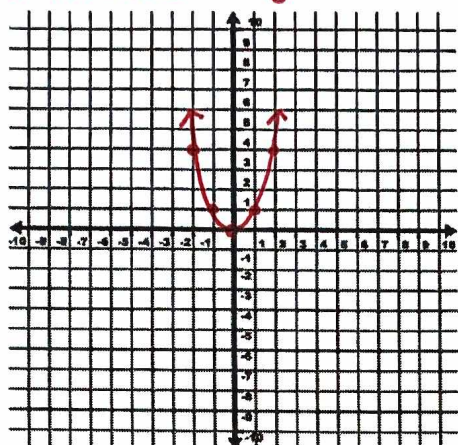
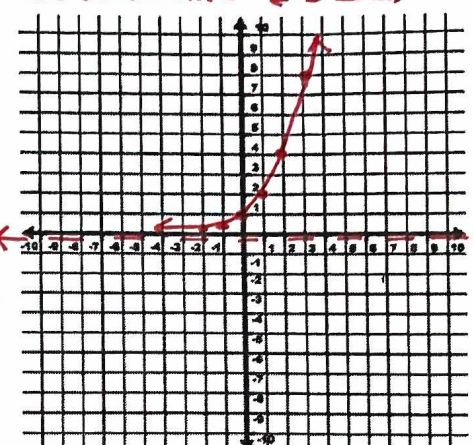


AA PREP—REVIEW OF TRANSFORMATION STRUCTURE—WORKSHEET #1

KEY

1. Graph each of the following parent functions. State domain and range. Include any asymptotes.

| <p>a) $y = x^2$ QUADRATIC</p> <table border="1" style="display: inline-table; border-collapse: collapse; margin-right: 20px;"> <tr><th>x</th><th>y</th></tr> <tr><td>-2</td><td>4</td></tr> <tr><td>-1</td><td>1</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>1</td><td>1</td></tr> <tr><td>2</td><td>4</td></tr> </table>  <p style="text-align: center; margin-top: 20px;"> Domain: \mathbb{R} ($-\infty, \infty$) Range: $y \geq 0$ ($[0, \infty)$) </p> | x | y | -2 | 4 | -1 | 1 | 0 | 0 | 1 | 1 | 2 | 4 | <p>b) $y = 2^x$ EXPONENTIAL</p> <table border="1" style="display: inline-table; border-collapse: collapse; margin-right: 20px;"> <tr><th>x</th><th>y</th></tr> <tr><td>-2</td><td>$\frac{1}{4}$</td></tr> <tr><td>-1</td><td>$\frac{1}{2}$</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>1</td><td>2</td></tr> <tr><td>2</td><td>4</td></tr> </table>  <p style="text-align: center; margin-top: 20px;"> Domain: \mathbb{R} ($-\infty, \infty$) Range: $y > 0$ ($(0, \infty)$) </p> | x | y | -2 | $\frac{1}{4}$ | -1 | $\frac{1}{2}$ | 0 | 1 | 1 | 2 | 2 | 4 |
|---|---------------|---|----|---|----|---|---|---|---|---|---|---|---|---|---|----|---------------|----|---------------|---|---|---|---|---|---|
| x | y | | | | | | | | | | | | | | | | | | | | | | | | |
| -2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| -1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| x | y | | | | | | | | | | | | | | | | | | | | | | | | |
| -2 | $\frac{1}{4}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| -1 | $\frac{1}{2}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |

2. Identify the parent function and all transformations.

- | | | |
|-------------------------------|--|--|
| a) $f(x) = 5(x-1)^3$ | $y = x^3$ CUBIC | V STRETCH $\times 5$ H TRANSLATION $1\mathbb{R}$ |
| b) $y = 2^{-x} - 1$ | $y = 2^x$ EXPONENTIAL (BASE = 2) | REFLECTION OVER y -AXIS V TRANSLATION $1\mathbb{D}$ |
| c) $g(x) = -4x^2 + 12$ | $y = x^2$ QUADRATIC | REFLECTION OVER x -AXIS V STRETCH $\times 4$ V TRANSLATION $12\mathbb{U}$ |
| d) $f(x) = \frac{2}{x-1} + 3$ | $y = \frac{1}{x}$ RATIONAL | V STRETCH $\times 2$ H TRANSLATION $1\mathbb{R}$ V TRANSLATION $3\mathbb{U}$ |
| e) $y = -\frac{1}{5}\sqrt{x}$ | $y = \sqrt{x}$ SQUARE ROOT | REFLECTION OVER x -AXIS V COMPRESSION $\times \frac{1}{2}$ |
| f) $g(x) = \frac{1}{3} x+4 $ | $y = x $ ABSOLUTE VALUE | V COMPRESSION $\times \frac{1}{3}$ H TRANSLATION $4\mathbb{L}$ |