

AA PREP—REVIEW OF TRANSFORMATION STRUCTURE—WORKSHEET #2

KEY

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

<p>a) $g(x) = \sqrt{x}$ SQUARE ROOT</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>x</th><th>y</th></tr> <tr><td>0</td><td>0</td></tr> <tr><td>1</td><td>1</td></tr> <tr><td>4</td><td>2</td></tr> <tr><td>9</td><td>3</td></tr> </table> <p style="text-align: center;">Domain: $x \geq 0$ $[0, \infty)$ Range: $y \geq 0$ $[0, \infty)$</p>	x	y	0	0	1	1	4	2	9	3	<p>b) $f(x) = x^3$ CUBIC</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>x</th><th>y</th></tr> <tr><td>-2</td><td>-8</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>8</td></tr> </table> <p style="text-align: center;">Domain: \mathbb{R} $(-\infty, \infty)$ Range: \mathbb{R} $(-\infty, \infty)$</p>	x	y	-2	-8	-1	-1	0	0	1	1	2	8
x	y																						
0	0																						
1	1																						
4	2																						
9	3																						
x	y																						
-2	-8																						
-1	-1																						
0	0																						
1	1																						
2	8																						

2. Identify the parent function and all transformations.

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| <p>a) $f(x) = -\frac{1}{x+6}$</p> | <p>$y = \frac{1}{x}$
RATIONAL</p> | <p>REFLECTION OVER X-AXIS
H TRANSLATION 6 \downarrow</p> |
| <p>b) $y = 2^{x-5} + 3$</p> | <p>$y = 2^x$
EXPONENTIAL
(BASE = 2)</p> | <p>H TRANSLATION 5 \leftarrow
V TRANSLATION 3 \uparrow</p> |
| <p>c) $g(x) = 6 x + 4$</p> | <p>$y = x$
ABSOLUTE VALUE</p> | <p>V STRETCH x 6
V TRANSLATION 4 \uparrow</p> |
| <p>d) $f(x) = \frac{1}{4}x^3 - 8$</p> | <p>$y = x^3$
CUBIC</p> | <p>V COMPRESSION x $\frac{1}{4}$
V TRANSLATION 8 \downarrow</p> |
| <p>e) $g(x) = -(x+1)^2 - 3$</p> | <p>$y = x^2$
QUADRATIC</p> | <p>REFLECTION OVER X-AXIS
H TRANSLATION 1 \leftarrow
V TRANSLATION 3 \downarrow</p> |
| <p>f) $y = 3\sqrt{x-4}$</p> | <p>$y = \sqrt{x}$
SQUARE ROOT</p> | <p>V STRETCH x 3
H TRANSLATION 4 \leftarrow</p> |