

Name: KEY

Section 2.4 – Transformations

1. Write the equation of the transformed function

<p>If $f(x) = x^3 - x^2 - x + 1$ and we have a reflection in the y - axis</p> <p>$f(x) \rightarrow f(-x)$</p> <p>$(-x)^3 - (-x)^2 - (-x) + 1$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> $-x^3 - x^2 + x + 1$ </div>	<p>If $f(x) = 2x^2$ and we have a horizontal expansion by a factor of 2</p> <p>$f(x) \rightarrow f(\frac{1}{2}x)$</p> <p>$2(\frac{1}{2}x)^2 \rightarrow 2(\frac{1}{4}x^2)$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> $\frac{1}{2}x^2$ </div>
<p>If $f(x) = 4x - 5$ and we have a vertical shift down 7 units</p> <p>$f(x) \rightarrow f(x) - 7$</p> <p>$4x - 5 - 7$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> $4x - 12$ </div>	<p>If $f(x) = -x^3 + 2x^2 - 4$ and we have a reflection in the x - axis</p> <p>$f(x) \rightarrow -f(x)$</p> <p>$-(-x^3 + 2x^2 - 4)$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> $x^3 - 2x^2 + 4$ </div>

2. If $(3, -5)$ is on $f(x)$ which point is on:

a) $|f(x)|$ $(3, -5) \rightarrow (3, 5)$

b) $\frac{1}{f(x)}$ $(3, -5) \rightarrow (3, -\frac{1}{5})$

3. Graph the following transformation given the original graph.

Find the desired Composite Functions and State the Domain:

