QUIZ 7 - MATH 111 Friday, March 20

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to **show neatly all your work**. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. In the following diagram, fill in the missing formulas:

$$y = f(x) \xrightarrow{\text{Shift Up 1 Point}} \qquad \xrightarrow{\text{Reflect w.r.t. } x\text{-axis}} \qquad \xrightarrow{\text{Shift Left 3 Points}}$$

2. In the following diagram, fill in the missing transformations:

$$y = f(x) \longrightarrow y = f(3x) \longrightarrow y = f(3(x-2))$$

$$\longrightarrow y = -f(3(x-2)) \longrightarrow y = -f(3(x-2)) - 1$$

3. Consider the functions $f(x) = x + 5$ and $g(x) = \sqrt{3x - 7}$.

   (a) Find a formula for $(f \circ g)(x)$ and its domain. Leave the domain answer in interval notation.

   (b) Find a formula for $(g \circ f)(x)$ and its domain. Leave the domain answer in interval notation.

4. Let $f(x) = 5x^3 - 11$. Find a formula for $g(x) = f^{-1}(x)$, the inverse function of $f(x)$.