Name: _____
Date: _____
Class: _____

Algebra
Unit 10
HW 10-5

1) Describe any transformations that take place to $h(x) = |x|$ so that it becomes

$g(x) = \left|\frac{1}{2}x\right| - 3$

moved down 3

stretches horizontally by 2

2) Create a function, t(x), that would ~~stretch~~ compress g(x) horizonally by a factor of 3 if $h(x) = (x-4)^2 - 2$.

$g(x) = (3(x-4))^2 - 2$

3) What transformation would cause $g(x) = (2x)^2 - 16$ to be created from $f(x) = x^2 - 16$?

Compress horizontally by factor of 2

4) What transformations would happen to f(x) to create $g(x) = -\frac{1}{2}f(x)$?

reflected over x axis

compress vertically by factor of 1/2

5) Describe the transformations that would happen to f(x) if it was used to create $g(x) = 5f(x) + 1$.

moved up 1

Stretch vertically by a factor of 5

6) Create a function that would reflect f(x) in the x axis, move it up 4, to the left 3, ~~compress~~ stretch it vertically by a value of 2, and ~~stretch~~ compress it horizonatally by a value of 3 if $f(x) = (x-3)^2 + 4$.

$g(x) = 2(3(x-3+4))^2 + 4 + 4$

$g(x) = 2(3(x+1))^2 + 8$

7) Solve: $9x^2 - 7x - 10 = 5x^2 + 4x + 16$

$-5x^2 - 4x - 16 \quad -5x^2 - 4x - 16$

$4x^2 - 11x - 26 = 0$

$+26 \quad +26$

$\frac{4x^2}{4} - \frac{11x}{4} = \frac{26}{4}$

$x^2 - \frac{11}{4}x + \frac{121}{36} = \frac{26}{4} + \frac{121}{36}$

$\frac{-\frac{11}{4}}{2} = \left(\frac{-11}{8}\right)^2 = \frac{121}{36}$

$\sqrt{\left(x - \frac{11}{8}\right)^2} = \sqrt{\frac{355}{36}}$

$x - \frac{11}{8} = \pm\sqrt{\frac{355}{36}}$

$+\frac{11}{8} \quad +\frac{11}{8}$

$x = \frac{11}{8} \pm \sqrt{\frac{355}{36}}$