Math 251 Fall 2017 **Quiz #1.5, September 6**

Name: _____

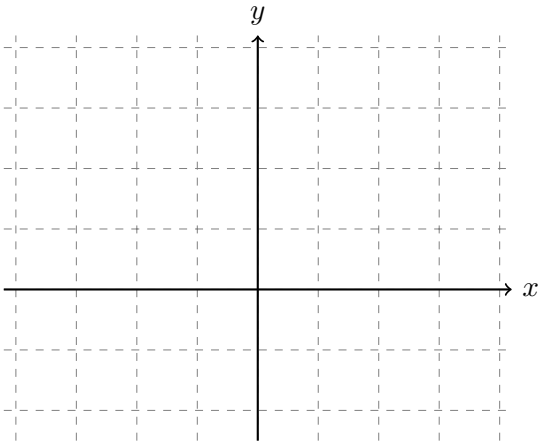
There are 25 points possible on this quiz. This is a closed book quiz, but you are allowed to use a ruler. **Please show all of your work!** If you have any questions, please raise your hand.

Exercise 1. (3 pts.) Find a formula for the inverse of the function $h(x) = \ln(2 - 5x)$.

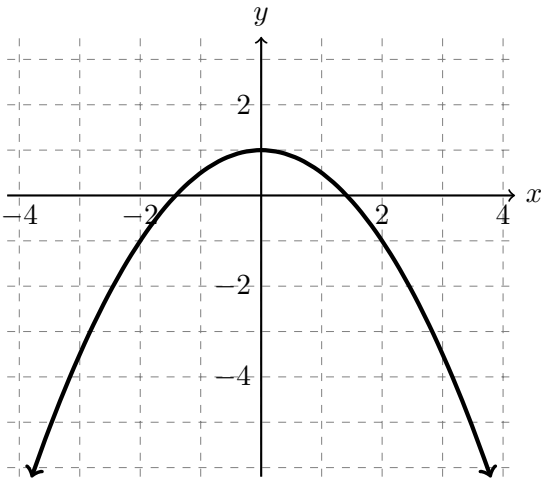
Exercise 2. (3 pts.) Solve $\sin x = 1$.

Exercise 3. (4 pts.)

1. Graph $h(x) = 2 + e^{x+1}$ on the grid given below. You must clearly label any asymptotes and explicitly label two points on your sketch.



2. The graph of the function $f(x)$ is given below. Draw on the same axes the function $g(x) = 3f(x)$.



Exercise 4. (6 pts.) Determine whether the following statements are true or false. Circle T or F.

a) $(e^{5x})^2 = e^{25x^2}$

T or F

b) $\sqrt{x^2+y^2} = x+y$

T or F

c) $(a+b)^2 = a^2+2ab+b^2$

T or F

d) $\dfrac{x^8}{x^{-3}} = x^5$

T or F

e) $\ln(ex) = 1 + \ln x$

T or F

f) $\tan^{-1} x = \frac{1}{\tan x}$

T or F

Exercise 5. (3 pts.) Find the domain of the function $f(x) = \frac{\sqrt{x-1}}{9-x^2}$. Give your answer in interval notation.

Exercise 6. (3 pts.) Expand the following logarithm: $\ln\left(\dfrac{\sqrt{x^2+4}}{2x}\right)$

Exercise 7. (3 pts.) Find an equation of the line through the points $(2,3)$ and $(7,1)$. State the slope and the y-intercept.