Due by 5:00pm Friday, March 5. Send a PDF with your solutions to blins@hsc.edu.

1. Find the antiderivative of  $\sqrt{e^x}$ .

2. Find the derivative of  $(2/3)^x$ .

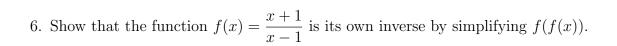
3. Compute  $\frac{d}{dx} \frac{1}{1 + e^x}$ .

4. Compute  $\int_0^{\pi} \cos x \, e^{\sin x} \, dx$ .

5. Find the inverse function  $x = f^{-1}(y)$  for the functions below.

(a) 
$$y = 1 + \frac{1}{x}$$

(b) 
$$y = 5x^3 + 2$$



7. Use a reference triangle to find 
$$\sin(\sec^{-1}(\sqrt{5}))$$

8. Use a reference triangle to simplify 
$$\cos(\tan^{-1}(2x))$$
.

9. Find the derivative of 
$$\sin^{-1}(x/2)$$
.

10. Compute 
$$\frac{d}{dx} \tan^{-1}(e^x)$$
. Hint: Start with the formula for the derivative of  $\tan^{-1}(x)$ .