Math 172Prerequisite WorksheetName:Due: 28 Aug. 2015Show Appropriate Work, Justify Answers

- 1. (2 pts) Solve for  $x: \frac{8}{x} 2 = x$
- 2. (6 pts) Sketch a graph for each. Clearly label the scale on the axes and provide appropriate points.



- 3. (4 pts) Evaluate exactly no calculators.
  - (a)  $\cos(-\pi/3)$  (b)  $\sin(2\pi/3)$  (c)  $\tan(3\pi/4)$  (d)  $\arctan(1)$
- 4. (4 pts) Use an appropriate triangle to simplify. [Hint:  $\sin 2\theta = 2\sin\theta\cos\theta$ ]

 $\sin(2 \arctan x)$ 

5. (6 pts) Differentiate.

(a) 
$$f(x) = x^{2/3} \ln x$$
 (b)  $g(y) = \arctan(2y+6)$ 

6. (12 pts) Evaluate.

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(a) 
$$\lim_{x \to \infty} \frac{\ln x}{\sqrt{x}}$$

(b) 
$$\int \frac{\sqrt{x}-1}{x} dx$$

(c) 
$$\int_{\pi/6}^{\pi/4} \cos(2x) \, dx$$

7. (2 pts) Evaluate the integral by interpreting it as an area. Provide justification. [Hint: consider  $x^2 + y^2 = 1$ ]

$$\int_{-1}^{1} \sqrt{1 - x^2} \, dx$$

- 8. (4 pts) Answer the following questions using the main course webpage:
  - (a) What are the dates of the three common hour exams?
  - (b) When is the final exam (date and time)? \_\_\_\_\_
  - (c) What *percentage* of your overall grade is the online homework (WeBWorK)? \_\_\_\_\_
  - (d) Videos on several topics can be found on the main course webpage. In the <u>first video</u> for substitution, what is the integral in the <u>final</u> example?