

Math 125 G - Winter 2008
Mid-Term Exam Number Two
February 28, 2008
Answers

1. (a) partial fractions:

$$\frac{5}{6} \ln |x + 5| + \frac{1}{6} \ln |x - 1| + C$$

(b) trig. substitution:

$$\frac{1}{2} \ln \left| \frac{\sqrt{2}}{x} - \frac{\sqrt{2-x^2}}{x} \right| + C$$

2. (a) integration by parts:

$$\frac{1}{10} e^x (\cos 3x + 3 \sin 3x) + C$$

(b)

$$\frac{1}{7} \tan^7 x + \frac{1}{5} \tan^5 x + C$$

3. (a) 2 (b) $\frac{2}{27}$

4. You need to work out the work required for each situation. You might begin by assuming a cone of height h with base radius r . If you orient both cases with the vertex at the origin, some expressions are simpler than they might otherwise be.

5. $p = \frac{-1 + \sqrt{5}}{2}$