M175 - 04 EXAM 1 SPRING 2012 Answer key (Ver A)

1. $\frac{(x^{3/2}+8)^6}{9} + C.$

2. a) $\arcsin(-\sqrt{3}/2) = -\pi/3$ or $5\pi/3$.

   b) $\cos^{-1}(\cos(7\pi/6)) = 5\pi/6$.

3. $2\tan(\arccos(x/3)) = \frac{2\sqrt{9-x^2}}{x}$

4. a) See notes / text for proof.

   b) $f'(y) = \cos^{-1}(1-y) + \frac{y}{\sqrt{y(2-y)}}$ or $\cos^{-1}(1-y) + \sqrt{\frac{y}{2-y}}$.

5. a) $9/2$ b) e^6

6. a) $\frac{1}{5}\tan^{-1}\left(\frac{4t}{5}\right) + C.$

   b) $-\frac{\cos^5\theta}{5} + \frac{\cos^7\theta}{7} + C.$

   c) $2\ln 2 - 1$

   d) $\frac{1}{2}\left(x - \frac{1}{2}\sin 2x\right) + C.$