

**Mat 115 Worksheet 3 Answers**  
**Tuesdays, Oct 10 2017**

1. 0
2.  $1/8$  (use the double angle identity  $2 \sin 2x \cos 2x = \sin 4x$ )
3.  $7\pi/12$
4.  $\pi/3$
5.  $6/7$
6.  $6 + \frac{e^9 - e^{-9}}{3}$
7.  $\sqrt{3} - 1$
8. 0
9.  $\pi^2/24 + 2\sqrt{3} - 2$
10.  $\sin x^2$
11.  $\sqrt{1 - \cos x}$
12.  $-x \sec x$
13.  $x$
14.  $3x^3$
15.  $\frac{2x^{13}}{1+x^8} - \frac{3x^{20}}{1+x^{12}}$
16. (a) 0, (b) 4, (c)  $4/5$
17. 4
18.  $2/\pi$
19.  $3/\pi$
20.  $4/\pi$