

1.  $L(x) = \frac{\pi}{2} - x$

2.  $L(x) = e^2x - e^2$

3.  $dy = 2x \cos(x^2) dx ; dy \approx 0.108$

4.  $dy = \frac{2x}{x^2+1} dx ; dy = 0.008$

5. 10.01

6.  $\frac{1}{(3.99)^2} \approx 0.06281$

7.  $\sqrt[4]{15.99} \approx 1.99969$

8.  $\sqrt{4.01} \approx 2.0025$

9. Estimated maximum error:  $0.16\pi \text{ in}^3$  ; Estimated percentage error: 1.5%

10. Estimated maximum error:  $0.32\pi \text{ in}^2$  ; Estimated percentage error: 0.5%

11. Estimated maximum error:  $24 \text{ cm}^2$  ; Estimated percentage error: 1%

**Review**

12.

a)  $-\frac{2}{\pi}$

b)  $-\infty$

c) 0

13.  $\lim_{x \rightarrow a} f(x) = f(a)$