Math 114 Spring 2019
Calculus I HW 4 Solutions
Due Wednesday, February 20

For this homework you may compute derivatives using any tools we have developed in class.

1. Stewart 2.1.4
2. Stewart 2.1.6
3. Stewart 2.1.16
4. Stewart 2.1.18
5. Stewart 2.2.4
6. Stewart 2.3.8
7. Stewart 2.3.20
8. Stewart 2.3.38
9. Stewart 2.3.40
10. Stewart 2.4.12
11. Stewart 2.4.26
12. Stewart 2.4.28
13. Stewart 2.8.12
14. Stewart 2.8.14
15. Use a linear approximation to estimate $\tan(\pi/4 + .1)$.

    Solution: We know that $\tan'(x) = \sec^2(x)$ so $\tan'(\pi/4) = \sec^2(\pi/4) = 2$. Thus
    $$\tan(\pi/4 + .1) \approx \tan(\pi/4) + 2(.1) = 1.2.$$
16. Use a linear approximation to estimate $\sin(.03)$.

    Solution: We know that $\sin'(x) = \cos(x)$ so $\sin'(0) = \cos(0) = 1$. Then
    $$\sin(.03) \approx \sin(0) + 1 \cdot (.03) = .03.$$