

Math 20A. Homework 3, Part 1.

Rogawski:

Section 3.3: 3, 11

Section 3.6: 5, 7, 15, 21

Section 3.7: 19, 33, 35, 55, 63

Section 3.8: 27, 29

Exercise 1 Give an equation of the tangent line to $y = \tan^2 x$ at $x = \frac{1}{4}\pi$. If you have a graphing calculator generate the curve and its tangent line and copy them on your paper.

Answer: $y(x) = \tan^2 x$ • $y(\frac{1}{4}\pi) = 1$ • $y'(\frac{1}{4}\pi) = 4$ • Tangent line: $y = 1 + 4(x - \frac{1}{4}\pi)$ • Figure 1

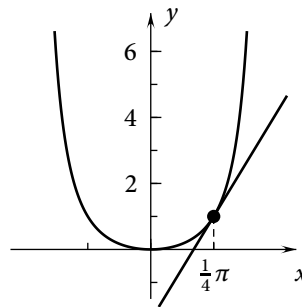


Figure 1

Exercise 2 Explain why the tangent lines to $y = \sin^2 x + 1$ in Figure 2 are all horizontal.

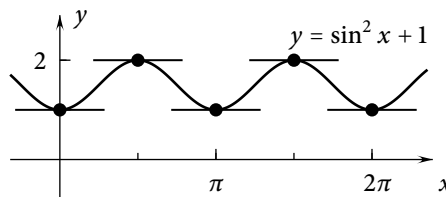


FIGURE 2