TMATH 124 Quiz 3

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. No credit is given without supporting work.

1. [4] Find the following:

   (product & quotient wks #3) $\qquad\qquad\qquad\qquad\qquad$ (§3.4 #24)

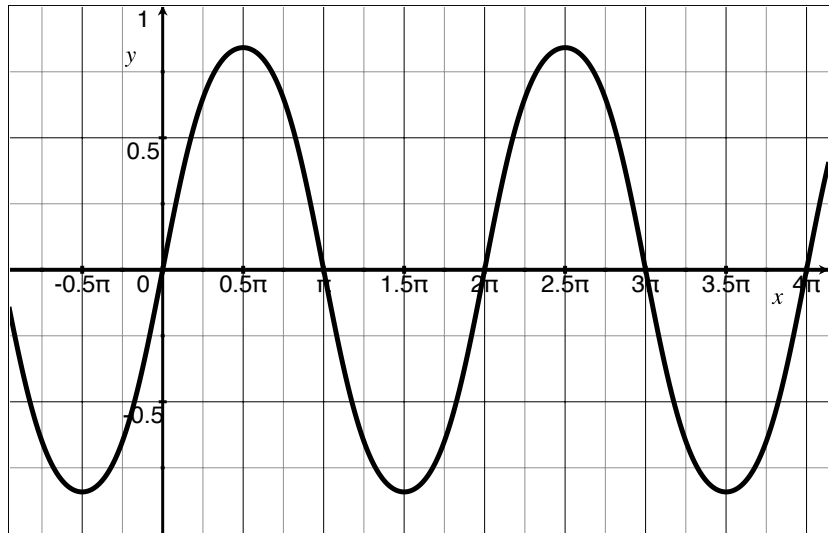 $$\left(\frac{6x^2 - \sqrt{x}}{2x}\right)'$$
   $$\frac{d}{dx}\left(10^{3-x^2}\right)$$

2. [2] (trig wks #2) Determine the following, if it exists. Be sure to justify your work.

   $$\lim_{x \to 0} \frac{x\cos(x + \frac{\pi}{4})}{\sin(x\sqrt{2})}$$

3. Consider the function $f(x) = \sin(\sin(x))$ graphed below.

(a) [3] (WebHW9 #10) Find the equation of the line tangent to the curve below when $x = \pi$.

(b) [1] Find all x values with the property that $f'(x) = 0$.