

Find the derivatives of the following functions:

1. $f(x) = \sqrt{x} \sin(x)$

2. $f(x) = \frac{1}{\cos(x)}$

3. $f(x) = \tan^2(x)$ Hint: this is the same as $(\tan(x))^2$

4. $f(x) = \sqrt{\cos(x)}$