

Worksheet 4

1. Find y' if $y = \sqrt{x} + \frac{1}{\sqrt[3]{x^4}}$

2. Find y' if $y = \tan^2(\sin \theta)$

3. Find y' if $y = \sqrt[5]{x \tan x}$

4. Find the equation of the tangent line to $y = \sqrt{1 + 4 \sin x}$ at the point $(0, 1)$.

5. At what point on the curve $y = \sin x + \cos x$, $0 \leq x \leq 2\pi$, is the tangent line horizontal?

6. Find y' if $\sin(xy) = x^2 - y$

7. Find y' if $x \tan y = y - 1$

8. Find y'' if $x^6 + y^6 = 1$

9. Find an equation for the tangent line to $x^2 + 4xy + y^2 = 13$ at the point $(2, 1)$

10. Find the points on the ellipse $x^2 + 2y^2 = 1$ where the tangent line has a slope of 1.