1. Sketch the graph of $y = \dfrac{\cos x - \sin x}{\cos x + \sin x}$.

2. Use the graph of $y = x^2 - 1$ to sketch the graph of $y = (x^2 - 1)^2$.

3. Use the graph of $y = \cos x$ to sketch the graph of $y = (\cos x)^2$.

4. Use the graph of $y = 3x - \dfrac{x^3}{4}$ to sketch the graph of. $y = \left(3x - \dfrac{x^3}{4}\right)^3$

5. For the function $f(x) = 3x - \dfrac{x^3}{4}$ use the graph of $y = f(x)$ to sketch the graphs of

a) $y = \sqrt{f(x)}$, b) $y^2 = f(x)$.

6. For the function $f(x) = 4\sin x$ use the graph $y = f(x)$ to sketch the graphs of

a) $y = \sqrt{f(x)}$, b) $y^2 = f(x)$.

7. Use the graphs of $y = \ln u$ and $u = \sin x$ $(0 \le x \le 2\pi)$ to sketch the graph of $y = \ln(\sin x)$ $(0 \le x \le 2\pi)$.

8. Sketch (showing critical points and stationary points) the graph of $x^3 + y^3 = 1$.

9. Sketch (showing critical points and stationary points) the graph of $x^2 + y^2 + xy = 3$.

10. Find the equation of the tangent to the curve $xy(x + y) + 16 = 0$ at the point on the curve where the gradient is -1.

$$\boxed{y + x + 4 = 0}$$

11. Sketch the graph of $y = \dfrac{x^2 + 1}{x^2 - 1}$. Use this graph to solve the inequality $\dfrac{x^2 + 1}{x^2 - 1} < 1$.

$$\boxed{-1 < x < 1}$$