$f(x) = x^{3} \cos x$ $f(x) = 3x^{2} \cos x - x^{3} \sin x$

#2 $f(x) = \sqrt{x} \sin x$ $f(x) = \frac{1}{2\sqrt{x}} \sin x + \sqrt{x} \cos x$

 $f(x) = \frac{\sin x}{x^2}$ $f(x) = \frac{x^2 \cos x - 2x \sin x}{x^4} = \frac{x \cos x - 2 \sin x}{x^3}$

 $f(x) = \frac{\cos x}{x^3}$ $f(x) = \frac{-x^3 \sin x - 3x^2 \cos x}{x^6}$ $= \frac{-x \sin x - 3 \cos x}{x^4}$

#5 $f(x) = \frac{\sin x}{x}$ $f'(x) = \frac{x \cos x - \sin x}{x^2}$

#6 $f(x) = x^2 sinx$ $f'(x) = 2 \times sinx + x^2 cox$

 $47 \quad y = \frac{3(1-\sin x)}{2\cos x}$ $y' = \frac{3}{2} \frac{-\cos^2 x - \sin x(1-\sin x)}{\cos^2 x}$ $= \frac{3}{2} \frac{\sin^2 x - \cos^2 x - \sin x}{\cos^2 x}$ $= \frac{3}{2} \frac{\cos^2 x}{\cos^2 x}$ $= \frac{3}{2} \frac{\cos^2 x}{\cos^2 x}$

#8 f(x) = -x + tanx f'(x) = -1 + sec2x

#9 g(t) = 4/t + 6 csct
g(t) = 1/4 + 6 csct cott.

#10 y =-cscx-sinx
y'= cscxcutx-cosx

#11 f(x) = x2 tanx , f'(x)= 2x tanx + x2 pec2x

#12 $y = 2xsinx + x^2cosx$ $y' = 2sinx + 4xcosx - x^2sinx$

#13 f(0) = (0+1)0000 > f(0)= cord - (0+1) sind

#14 f(x) = 1 - 12 secx -> f'(x)== 1 - 12 secx tanx

#15 f(x)= Seex > f(x)= Secx(xtanx-1)

#16 $f(x) = \sin x \cos x$ $f'(x) = \cos^2 x - \sin^2 x$ $= \cos^2 x$

#17 f(0)=50 sec0 +0 tand f(0)=5 sec0 +50 seco tand + tand + 0 sec20

#18
$$f(x) = \frac{\sin x - 3x}{x}$$

$$f'(x) = \frac{x \cos x - 3x - \sin x + 3x}{x^2}$$

$$= \frac{x \cos x - \sin x}{x^2}$$

#19
$$f(x) = \frac{\sin x + \partial x}{x}$$

$$f'(x) = \frac{x \cos x + \partial x - \sin x - \partial x}{x^2}$$

$$= \frac{x \cos x - \sin x}{x^2}$$

#20
$$f(0) = \frac{\sin \theta}{1 - \cos \theta}$$

$$f(0) = \frac{\cos \theta - \cos^2 \theta - \sin^2 \theta}{(1 - \cos \theta)^2}$$

$$= \frac{-1}{1 - \cos \theta}$$

#21
$$f(a) = \frac{0}{1-\sin 0}$$

 $f'(0) = \frac{1-\sin 0 + 0\cos 0}{(1-\sin 0)^2}$