Q7. Same Q5 $\sec[\tan(\sqrt{x})]$ w.r.t. x.

→ let $y = \sec[\tan(\sqrt{x})]$

diff w.r.t x

$$\frac{dy}{dx} = \sec[\tan(\sqrt{x})]\tan[\tan(\sqrt{x})]\cdot\sec^2(\sqrt{x})\cdot\frac{1}{2\sqrt{x}}$$

$$= \frac{\sec[\tan(\sqrt{x})]\tan[\tan(\sqrt{x})]\cdot\sec^2(\sqrt{x})}{2\sqrt{x}}$$

Q8. Same Q5 $\cos\sqrt{x}$, w.r.t x.

→ let $y = \cos\sqrt{x}$

diff w.r.t x.

$$\frac{dy}{dx} = -\sin\sqrt{x}\cdot\frac{1}{2\sqrt{x}}$$

$$= \frac{-\sin(\sqrt{x})}{2\sqrt{x}}$$

Q9 Same Q5 $2\sqrt{\cot(x^2)}$ w.r.t x.

→ let $y = 2\sqrt{\cot(x^2)}$

diff w.r.t x.

$$\frac{dy}{dx} = \frac{2}{2\sqrt{\cot(x^2)}}\cdot -\operatorname{cosec}^2(x^2)\cdot 2x$$

$$= \frac{-2x\cdot\operatorname{cosec}^2(x^2)}{\sqrt{\cot(x^2)}}$$

Q10 Same Q5 $\frac{\sin(ax+b)}{\cos(cx+d)}$ w.r.t x,

→ let $y = \frac{\sin(ax+b)}{\cos(cx+d)}$ diff w.r.t x,

$$\frac{dy}{dx} = \frac{\cos(cx+d)\cdot\frac{d\sin(ax+b)}{dx} - \sin(ax+b)\cdot\frac{d\cos(cx+d)}{dx}}{\cos^2(cx+d)}$$

$$= \frac{\cos(cx+d)\cdot a\cdot\cos(ax+b) - \sin(ax+b)\cdot -c\sin(cx+d)}{\cos^2(cx+d)}$$