(4) $$\frac{d}{dx}\left[\sin^{-1}\left(\sqrt{2x}\right)\right] = \frac{d}{dx}\left[\sin^{-1}\left((2x)^{\frac{1}{2}}\right)\right]$$

$$= \frac{1}{\sqrt{1-\left((2x)^{\frac{1}{2}}\right)^2}}\,\frac{1}{2}(2x)^{-\frac{1}{2}}\cdot 2 = \boxed{\frac{1}{\sqrt{2x}\,\sqrt{1-x}}}$$

(12) $$\frac{d}{dx}\left[e^{\tan^{-1}(\pi x)}\right] = e^{\tan^{-1}(\pi x)}\frac{d}{dx}\left[\tan^{-1}(\pi x)\right]$$

$$= e^{\tan^{-1}(\pi x)}\,\frac{1}{1+(\pi x)^2}\,\pi = \boxed{\frac{\pi e^{\tan^{-1}(\pi x)}}{1+\pi^2 x^2}}$$

(14) $$\frac{d}{dx}\left[\tan^{-1}(x\sin x)\right]$$

$$= \frac{1}{1+(x\sin(x))^2}\frac{d}{dx}\left[x\sin(x)\right]$$

$$= \frac{1}{1+x^2\sin^2(x)}\left(1\cdot\sin(x)+x\cos(x)\right)$$

$$= \boxed{\frac{\sin(x)+x\cos(x)}{1+x^2\sin^2(x)}}$$