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Class $\mathbf{- 1 2}^{\text {th }}$
Worksheet-27

Chapter-7
differentiate the following with respect to $x$
(i) $y=\sin ^{-1}\left(\frac{2 x}{1+x^{2}}\right)$
(ii) $y=\sin ^{-1} \sqrt{\cos x}$
(iii) $y=\sqrt{\cos ^{-1} \sqrt{x}}$
(iv) $y=\tan ^{-1}\left(\frac{3 x-x^{3}}{1-3 x^{2}}\right), x \in\left(-\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}\right)$
Q. 2 Differentiate the following with respect to $x$
(i) $\tan ^{-1}\left(\sin e^{x}\right)$
(ii) $\sin ^{-1}\left(\sqrt{\sin x^{2}}\right)$
(iii) $\sin ^{-1}\left(\frac{a+b \cos x}{b+a \cos x}\right)$
Q. 3 Differentiate the following with respect to $x$
(i) $\tan ^{-1}(\sec x+\tan x)$
(ii) $\sin ^{-1}\left(\frac{1-x^{2}}{1+x^{2}}\right)$
(iii) $\tan ^{-1}\left(\sqrt{\frac{a-x}{a+x}}\right)$
(iv) $\tan ^{-1}\left(\frac{\sqrt{1+x^{2}}-1}{x}\right)$

