

THE INVERSE TRIGONOMETRIC FUNCTIONS - EXERCISES

① Find the exact value of:

- (a) $\sin^{-1}(\frac{1}{2})$ (b) $\arccos(-\frac{1}{2})$ (c) $\tan^{-1}(-1)$
 (d) $\arccos(\frac{1}{2})$ (e) $\sin^{-1}(-\frac{\sqrt{3}}{2})$ (f) $\arctan(1)$
 (g) $\sin^{-1}(\frac{1}{\sqrt{2}})$ (h) $\arccos(-\frac{1}{\sqrt{2}})$ (i) $\tan^{-1}(\sqrt{3})$
 (j) $\sin[\cos^{-1}(\frac{\sqrt{3}}{2})]$ (k) $\cos[\sin^{-1}(-\frac{1}{2})]$ (l) $\tan[\tan^{-1}(\frac{1}{\sqrt{3}})]$
 (m) $\sin[\tan^{-1}(-\sqrt{3})]$ (n) $\cos[\sin^{-1}(\frac{4}{5})]$ (o) $\sin[\cos^{-1}(\frac{2}{3})]$
 (p) $\sec[\arctan(-\frac{3}{5})]$ (q) $\cot[\arccos(\frac{8}{17})]$

② Find the approximate value of:

- (a) $\arccos(0.28)$ (b) $\sin^{-1}(-0.75)$ (c) $\arctan(-2)$
 (d) $\cos[\tan^{-1}(7)]$ (e) $\sin[\cos^{-1}(0.33)]$ (f) $\tan^{-1}[\sin(14.1)]$

③ Find the value of:

- (a) $\cos[\sin^{-1}(\frac{x}{2})]$ (b) $\tan[\arccos(\frac{x}{3})]$ (c) $\sec[\tan^{-1}(\frac{x}{5})]$
 (d) $\cos[\arcsin(2x)]$ (e) $\tan[\sin^{-1}(\frac{3x}{5})]$ (f) $\cos[\arctan(x)]$

*④ Solve for x: (a) $3\cos^{-1}(x+2) - \pi = \pi$
 (b) $\tan^{-1}(x) - \sin^{-1}(\frac{3}{5}) = 0$

ANSWERS

- ① (a) $\frac{\pi}{6}$ (b) $\frac{2\pi}{3}$ (c) $-\frac{\pi}{4}$ (d) $\frac{\pi}{3}$ (e) $-\frac{\pi}{3}$ (f) $\frac{\pi}{4}$ (g) $\frac{\pi}{4}$ (h) $\frac{3\pi}{4}$ (i) $\frac{\pi}{3}$
 (j) $\frac{1}{2}$ (k) $\frac{\sqrt{3}}{2}$ (l) $\frac{1}{\sqrt{3}}$ (m) $-\frac{\sqrt{3}}{2}$ (n) $\frac{3}{5}$ (o) $\frac{\sqrt{5}}{3}$ (p) $\frac{\sqrt{34}}{5}$ (q) $\frac{8}{15}$

- ② (a) 1.287 (b) -0.848 (c) -1.107 (d) 0.141 (e) 0.944 (f) 0.785

- ③ (a) $\frac{\sqrt{4-x^2}}{2}$ (b) $\frac{\sqrt{9-x^2}}{x}$ (c) $\frac{\sqrt{25+x^2}}{5}$ (d) $\sqrt{1-4x^2}$ (e) $\frac{3x}{\sqrt{25-9x^2}}$ (f) $\frac{1}{\sqrt{x^2+1}}$

- ④ (a) $-\frac{5}{2}$ (b) $\frac{3}{4}$