

## Inverse Trig Functions Quiz Practice

**Differentiate each function with respect to  $x$ .**

1)  $f(x) = \cos^{-1} x^5$

2)  $y = \csc^{-1} 2x^2$

3)  $y = \cot^{-1} -4x^5$

4)  $f(x) = \sec^{-1} 5x^2$

5)  $f(x) = \tan^{-1} 3x^3$

6)  $f(x) = \sin^{-1} 2x^4$

**Evaluate each indefinite integral.**

7)  $\int \frac{1}{25 + x^2} dx$

8)  $\int \frac{1}{\sqrt{16 - x^2}} dx$

$$9) \int \frac{1}{1+x^2} dx$$

$$10) \int \frac{1}{\sqrt{25-x^2}} dx$$

$$11) \int \frac{1}{9+x^2} dx$$

$$12) \int \frac{1}{x\sqrt{x^2-16}} dx$$

$$13) \int \frac{10x^4}{\sqrt{25-4x^{10}}} dx$$

$$14) \int \frac{3x^2}{x^3\sqrt{x^6-1}} dx$$

$$15) \int \frac{4x}{2x^2\sqrt{4x^4-9}} dx$$

$$16) \int \frac{15x^2}{4+25x^6} dx$$

$$17) \int \frac{3x^2}{\sqrt{1-x^6}} dx$$

$$18) \int \frac{2x}{9+x^4} dx$$

## Answers to Inverse Trig Functions Quiz Practice

$$1) f'(x) = -\frac{1}{\sqrt{1-(x^5)^2}} \cdot 5x^4$$

$$= -\frac{5x^4}{\sqrt{1-x^{10}}}$$

$$2) \frac{dy}{dx} = -\frac{1}{|2x^2|\sqrt{(2x^2)^2-1}} \cdot 4x$$

$$= -\frac{2}{x\sqrt{4x^4-1}}$$

$$3) \frac{dy}{dx} = -\frac{1}{(-4x^5)^2+1} \cdot -20x^4$$

$$= \frac{20x^4}{16x^{10}+1}$$

$$4) f'(x) = \frac{1}{|5x^2|\sqrt{(5x^2)^2-1}} \cdot 10x$$

$$= \frac{2}{x\sqrt{25x^4-1}}$$

$$5) f'(x) = \frac{1}{(3x^3)^2+1} \cdot 9x^2$$

$$= \frac{9x^2}{9x^6+1}$$

$$6) f'(x) = \frac{1}{\sqrt{1-(2x^4)^2}} \cdot 8x^3$$

$$= \frac{8x^3}{\sqrt{1-4x^8}}$$

$$7) \frac{1}{5} \cdot \tan^{-1} \frac{x}{5} + C$$

$$8) \sin^{-1} \frac{x}{4} + C$$

$$9) \tan^{-1} x + C$$

$$10) \sin^{-1} \frac{x}{5} + C$$

$$11) \frac{1}{3} \cdot \tan^{-1} \frac{x}{3} + C$$

$$12) \frac{1}{4} \cdot \sec^{-1} \frac{|x|}{4} + C$$

$$13) \sin^{-1} \frac{2x^5}{5} + C$$

$$14) \sec^{-1} |x^3| + C$$

$$15) \frac{1}{3} \cdot \sec^{-1} \frac{|2x^2|}{3} + C$$

$$16) \frac{1}{2} \cdot \tan^{-1} \frac{5x^3}{2} + C$$

$$17) \sin^{-1} x^3 + C$$

$$18) \frac{1}{3} \cdot \tan^{-1} \frac{x^2}{3} + C$$