

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

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

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

3)  $y = \tan^{-1} 2x^4$

4)  $y = \csc^{-1} 4x^2$

5)  $y = (\sin^{-1} 5x^2)^3$

6)  $y = \sin^{-1} (3x^5 + 1)^3$

7)  $y = (\cos^{-1} 4x^2)^2$

8)  $y = \cos^{-1} (-2x^3 - 3)^3$

**Evaluate each indefinite integral.**

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

2)  $\int \frac{1}{4+x^2} dx$

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

4)  $\int \frac{1}{16+x^2} dx$

5)  $\int \frac{1}{x\sqrt{x^2-4}} dx$

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

7)  $\int \frac{1}{x\sqrt{x^2-81}} dx$

8)  $\int \frac{1}{4+x^2} dx$

**Evaluate each indefinite integral. Use the provided substitution.**

1)  $\int \frac{20x^3}{\sqrt{25-25x^8}} dx; u = 5x^4$

2)  $\int \frac{10x^4}{9+4x^{10}} dx; u = 2x^5$

3)  $\int -\frac{2 \cdot \csc^2 2x}{\cot(2x) \cdot \sqrt{\cot^2 2x - 1}} dx; u = \cot 2x$

4)  $\int \frac{1}{x\sqrt{25 - (\ln -2x)^2}} dx; u = \ln -2x$

**Evaluate each indefinite integral.**

5)  $\int \frac{8x}{\sqrt{9-16x^4}} dx$

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

7)  $\int \frac{10x}{16+25x^4} dx$

8)  $\int -\frac{4\sin 4x}{\sqrt{9-\cos^2 4x}} dx$