

## Section 2: Inverse trigonometric functions

### Exercise level 1

1. Show that  $\frac{d}{dx}(\arccos x) = -\frac{1}{\sqrt{1-x^2}}$ .

2. Differentiate each of the following with respect to  $x$ .

(i)  $\arcsin 3x$

(ii)  $\arctan 2x$

(iii)  $\arccos 4x$

(iv)  $\arcsin(4x+1)$

(v)  $\arctan(10-3x)$

(vi)  $\arccos(5x+2)$

3. Find the following indefinite integrals.

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

(ii)  $\int \frac{1}{3+x^2} dx$

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

(iv)  $\int \frac{4}{\sqrt{16-9x^2}} dx$

4. Evaluate

(i)  $\int_0^3 \frac{1}{9+x^2} dx$

(ii)  $\int_{-\frac{1}{8}}^{\frac{1}{8}} \frac{1}{\sqrt{1-16x^2}} dx$

(iii)  $\int_0^{\frac{2}{\sqrt{5}}} \frac{1}{4+9x^2} dx$

(iv)  $\int_0^{1.25} \frac{1}{\sqrt{25-4x^2}} dx$