

## Simple Example

$$I = \int \frac{dx}{x^2 \sqrt{1-x^2}}$$

$$x = \cos u$$
$$dx = -\sin u$$

$$I = \int \frac{-\cancel{\sin} u \, du}{\cos^2 u \sqrt{\cancel{\sin}^2 u}}$$

$$I = -\int \sec^2 u \, du$$

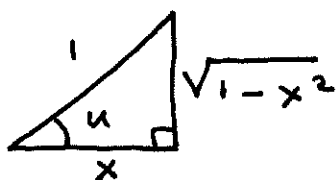
$$I = -\tan u$$

Must now convert back to  $x$

$$I = -\tan(\arccos x)$$

UNACCEPTABLE

Answer without inverse trig. functions



hence

$$I = -\tan u = -\frac{\sqrt{1-x^2}}{x} \quad \underline{\text{ACCEPTABLE}}$$