

and so Equation 8 becomes

$$\boxed{9} \quad \int_{-a}^a f(x) dx = \int_0^a f(-u) du + \int_0^a f(x) dx$$

(a) If  $f$  is even, then  $f(-u) = f(u)$  so Equation 9 gives

$$\int_{-a}^a f(x) dx = \int_0^a f(u) du + \int_0^a f(x) dx = 2 \int_0^a f(x) dx$$

(b) If  $f$  is odd, then  $f(-u) = -f(u)$  and so Equation 9 gives

$$\int_{-a}^a f(x) dx = -\int_0^a f(u) du + \int_0^a f(x) dx = 0$$

$y \uparrow$

$$10 \int \cos 2A \, dA$$

$$20 \int \cos^2 2A \, dA$$

$$\int_{\pi/3}^{\pi/2} \sin \theta$$

$$\int_{\pi/2}^{\pi} x^2 \sin x$$