

Let $u = x^2$. Then $du = 2x dx$, so $\int_0^6 xf(x^2) dx = \int_0^{36} f(u)\left(\frac{1}{2} du\right)$
 $= \frac{1}{2} \int_0^{36} f(u) du = \frac{1}{2}(8) = 4.$