*3) $\int \frac{x}{2x^2\sqrt{4x^4-36}}\,dx$ $\quad (2x)^2$

$a=6$
$u=2x^2$
$du=4x\,dx$
$\frac{1}{4}du=x\,dx$

$\frac{1}{4}\int \frac{1}{u\sqrt{u^2-6^2}} = \frac{1}{4}\cdot\frac{1}{6}\operatorname{arcsec}\frac{|u|}{6}+C$ $\quad \frac{1}{4}\cdot\frac{1}{6}$

$= \frac{1}{24}\operatorname{arcsec}\left(\frac{|2x^2|}{6}\right)+C$

$= \frac{1}{24}\operatorname{arcsec}\left(\frac{x^2}{3}\right)+C$

4) * $\int_0^1 \frac{1}{\sqrt{4-x^2}}\,dx =$ $\quad \sqrt{2^2-x^2}$

$a=2$
$u=x$

$\int \frac{1}{\sqrt{2^2-u^2}}\,du = \arcsin\left(\frac{u}{2}\right)$

$= \arcsin\left(\frac{x}{2}\right)\Big|_0^1$

$= \arcsin\left(\frac{1}{2}\right)-\arcsin(0)$

$= \frac{\pi}{6}-0$

$= \frac{\pi}{6}$