* Irigonometric Substitutions Trig substitutions can be effective in trasforming into integrals we can evaluate directly substitution identity Expression x=asino, 0 € [= =] | = |= sino = cosio J Va - x x=atano, O=(-I,I) 1+tano-sce0 3 Jo2+x2 x-aseco, OE [a,] seco-1-ton2 3 J22-a2 OY X=a cosh 0 ey $\int \frac{dx}{\sqrt{4+x^2}}$, let $x=2+an\theta$, $dx=2\sec^2\theta d\theta$, $\theta\in \left(-\frac{\pi}{2},\frac{\pi}{2}\right)$ =\ \frac{2\sec^2\text{odo}}{\sqrt{4+4\tan^2\text{o}}} - \left(\frac{2\sec^2\text{odo}}{\sqrt{4(1+\tan^2\text{o})}} - \left(\frac{2\sec^2\text{odo}}{2\sec^2\text{odo}} = \ see0 el0 = |n | see0 + tam0| + C (x=2tan0) tan0= x 4+x2=4+4+and=4(1+tand)=4500 $\int \frac{\sec(0-4+x')}{\sin(-\frac{\pi}{2})} \frac{\sec(0-\frac{1}{2})}{\sec(0-\frac{1}{2})} \frac{\sec(0)}{2} \frac{\sin(0)}{2} \frac{\cos(0)}{\cos(0)} \frac{\cos($ (-2,2) $\left(\frac{x}{\sqrt{3-x^2}}dx\right)$, Let $x=3\sin\theta$, $dx=3\cos\theta\theta$, 9-x=9-9 sin20 = 9(1-5in20) = 9 cos0 -(qsin20.3 cosodo - q Ssin20do = q (1- cos20 do = q(0-sin20)+(= q(0-sin0coso)+($=\frac{9}{2}\left(\frac{1}{2}\frac{1}{3}\frac{1}{3}\frac{1}{3}\frac{1}{3}+\frac{1}{3}\frac{1}{3}\right)+C$ 0=51- x / 51-x0= x / 6050= 1 q-x1