

4. $y = \sqrt{16-x^2}$

$y = (16-x^2)^{\frac{1}{2}}$

① $y' = \frac{1}{2}(16-x^2)^{\frac{1}{2}-1} \cdot \frac{d}{dx}(16-x^2)$

$= \frac{1}{2}(16-x^2)^{-\frac{1}{2}} \cdot (-2x)$

$= \frac{-2x}{2(16-x^2)^{\frac{1}{2}}}$

$y' = \frac{-x}{(16-x^2)^{\frac{1}{2}}} = \frac{-x}{\sqrt{16-x^2}}$

②

$-x = 0$

$\frac{-x}{-1} = \frac{0}{-1}$

c.v. $x = 0$

$(16-x^2)^{\frac{1}{2}} = 0$

$[(16-x^2)^{\frac{1}{2}}]^{\frac{2}{1}} = 0^{\frac{2}{1}}$

$16-x^2 = 0$

$16 = x^2$

$\pm\sqrt{16} = x$

$\pm 4 = x$ c.v.

③

	$-\infty$	$x = -4$	$x = 0$	$x = 4$	∞
TEST CASES	$x = -5$	$x = -1$	$x = 1$	$x = 5$	
PLUG IN	$\frac{-x}{\sqrt{16-x^2}}$	$\frac{-x}{\sqrt{16-x^2}}$	$\frac{-x}{\sqrt{16-x^2}}$	$\frac{-x}{\sqrt{16-x^2}}$	
DERIV.	$\frac{-(-5)}{\sqrt{16-(-5)^2}}$	$\frac{-(-1)}{\sqrt{16-(-1)^2}}$	$\frac{-1}{\sqrt{16-1^2}}$	$\frac{-5}{\sqrt{16-5^2}}$	
	$\frac{5}{\sqrt{16-25}}$	$\frac{1}{\sqrt{16-1}}$	$\frac{-1}{\sqrt{16-1}}$	$\frac{-5}{\sqrt{16-25}}$	

INC $(-4, 0)$
DEC $(0, 4)$