

13)  $g(t) = t\sqrt{4-t} \quad t < 3$

$g'(t) = 1(\sqrt{4-t}) + \frac{t(-1)}{2\sqrt{4-t}}$

$0 = \sqrt{4-t} - \frac{t}{2\sqrt{4-t}} \quad \times 2\sqrt{4-t}$

$0 = 2(4-t) - t$

$0 = 8 - 3t$

$t = \frac{8}{3}$

undefined  
4, but  $t < 3$

15)  $h(x) = \sin^2 x + \cos x \quad [0, 2\pi]$

$h'(x) = 2 \sin x \cos x - \sin x$

$0 = \sin x (2 \cos x - 1)$

$\sin x = 0 \quad 2 \cos x = 1$

$x = \sin^{-1}(0) \quad \cos x = \frac{1}{2}$

$x = 0 + \pi n, n \in \mathbb{Z}$

$x = \cos^{-1} \frac{1}{2}$

$\frac{\pi}{3} + 2\pi n, n \in \mathbb{Z}$

$0, \pi, 2\pi, \frac{\pi}{3}, \frac{2\pi}{3}$

$\frac{2\pi}{3} + 2\pi n, n \in \mathbb{Z}$

23)  $y = 3x^{\frac{2}{3}} - 2x \quad [-1, 1]$

$\frac{dy}{dx} = 2x^{-\frac{1}{3}} - 2$

$0 = 2x^{-\frac{1}{3}} - 2$

$2 = 2x^{-\frac{1}{3}}$

$1 = x^{-\frac{1}{3}}$

$1 = \frac{1}{\sqrt[3]{x}}$

$x = 1$

undef:  $x = 0$

$(-1, 5)$  max

$(0, 0)$  min

$(1, 1)$

29)  $y = 3 - |t-3| \quad [-1, 5]$

$\frac{dy}{dx} = -\frac{t-3}{|t-3|}$

$0 = \begin{cases} 1 & t > 3 \\ -1 & t < 3 \end{cases}$

undefined at 3

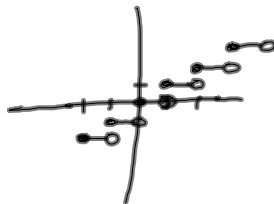
$(-1, -1)$  min

$(3, 3)$  max

$(5, 1)$



3)  $F(x) = [x] \quad [-2, 2]$



x	[x]
0	0
1	1
2	2
1.1	1
0.7	0