

$$1d) f(x) = -2 \cdot \sin(x-2) + 1$$

$$2 \leq x \leq 2+2\pi$$

$$0 = -2 \sin(x-2) + 1 \quad | -1$$

$$-1 = -2 \sin(x-2) \quad | : (-2)$$

$$\frac{1}{2} = \sin(x-2) \quad | \text{Substitution}$$

$$\frac{1}{2} = \sin(u) \quad | \arcsin$$

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

$$\pi - u = u'$$

$$\pi - \frac{\pi}{6} = u'$$

$$\frac{5\pi}{6} = u'$$

$$x-2 = \frac{5\pi}{6} \quad | +2$$

$$x \approx 4,62$$

$$x-2 = \frac{\pi}{6} \quad | +2$$

$$x \approx 2,52$$

$$\text{notw. Bed: } f'(x) = 0$$

$$0 = -2 \cdot \cos(x-2) \quad | : (-2)$$

$$0 = \cos(x-2) \quad | \text{Substitution}$$

$$0 = \cos(u) \quad | \arccos$$

$$\frac{1}{2}\pi = u \quad | \text{Resubstitution}$$

$$\frac{1}{2}\pi = x-2 \quad | +2$$

$$3,57 \approx x$$

$$\text{hinnr. Bed: } f'(x) = 0; f''(x) \neq 0$$

$$f''(3,57) = 2 \sin(3,57-2)$$

$$\approx 2 > 0 \rightarrow \text{Minimum } T(3,57 | -1)$$

$$2 + \frac{\pi}{2} + \pi = 2 + \frac{3}{2}\pi$$

$$H(2 + \frac{3}{2}\pi | 3)$$

$$\text{notw. Bed: } f''(x) = 0$$

$$0 = 2 \sin(x-2) \quad | :2$$

$$0 = \sin(x-2) \quad | S.$$

$$0 = \sin(u) \quad | \arcsin$$

$$0 = u$$

$$\pi - u'$$

$$x-2 = \pi \quad | +2$$

$$x \approx 5,14$$

$$x-2 = 0 \quad | +2$$

$$x = 2$$

$$\text{hinnr. Bed: } f''(x) = 0; f'''(x) \neq 0$$

$$f'''(\pi+2) = 2 \cos(\pi+2-2)$$

$$= -2 \neq 0 \rightarrow \text{WP}(\pi+2 | 1)$$

$$f'''(2) = 2 \cos(2-2)$$

$$= 2 \neq 0 \rightarrow \text{WP}(2 | 1)$$

$$\text{WP}(2\pi+2 | 1)$$

