$$f = \int_{v(t_0)}^{v(t)} \frac{m}{R(v)} \, dv$$

$$R(v) = -v\sqrt{v} \qquad v_0 = 20 \frac{m}{s}$$

$$m = 10 \, kg$$

Gesucht: Zeit bis $v = 5 \frac{m}{s} \Rightarrow \overset{a}{\underset{20}{\int}}^{5}{}^{b} \frac{10}{-v\sqrt{v}} \, dv$

f

a) $n = 5 \qquad h = \dfrac{b-a}{n} = \dfrac{5-20}{5} = -3$

$$x_i = a + ih$$

$$Rf = (-3) \sum_{i=0}^{4} f\left(20 + i \cdot (-3) + \frac{(-3)}{2}\right) = \underline{\underline{4,38}}$$

Exakter Wert $\int = 4,472$ Fehler $Rf = \underline{\underline{0,092}}$

b) $n = 5$, $h = -3$, $x_i = a + ih$

$$Tf = (-3) \cdot \left(\frac{f(20) - f(5)}{2} + \sum_{i=1}^{n-1} f\left(20 + i \cdot (-3)\right) \right)$$

$$= (-3) \qquad -0,503 \qquad + \qquad -1,0496$$

$$\Rightarrow \underline{\underline{4,658\ldots}} \qquad \Rightarrow Fehler = \underline{\underline{0,186}}$$