

4.

$$\lim_{x \rightarrow 1} \frac{3x+1}{x^2} = \frac{4}{1} = 4$$

$$\lim_{x \rightarrow 0} \frac{\sin 2x}{x} = \lim_{x \rightarrow 0} \frac{2 \sin(x) \cdot \cos(x)}{x} = \lim_{x \rightarrow 0} \frac{2 \sin(x)}{x} \cdot \lim_{x \rightarrow 0} \cos(x) = 2 \cdot 1 = 2$$

$$\lim_{x \rightarrow \infty} \frac{2x+3}{4-x} = \lim_{x \rightarrow \infty} -2 \cdot \left(\frac{-x-1,5}{4-x} \right) = \lim_{x \rightarrow \infty} 2 \cdot \left(\frac{-x-1,5+4-4}{4-x} \right) =$$

$$= \lim_{x \rightarrow \infty} -2 \cdot \left(\frac{-x+4-5,5}{4-x} \right) = \lim_{x \rightarrow \infty} -2 \cdot \left(1 - \frac{5,5}{4-x} \right) =$$

$$= \lim_{x \rightarrow \infty} -2 + \frac{11}{4-x} = -2$$