

1. (15 points) Find the limits of the following functions, if they exist. If the limit does not exist, state so.

(a)

$$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$$

(b)

$$\lim_{x \rightarrow 0} \frac{2 + 3 \sin x}{x^2 + 1}$$

(c)

$$\lim_{x \rightarrow \infty} x \cos x$$

(d)

$$\lim_{x \rightarrow \infty} \frac{1}{x} \cos x$$

(e)

$$\lim_{x \rightarrow \infty} \left(\sqrt{x^2 + x} - \sqrt{x^2 - x} \right)$$

Problem	Points
1	15
2	15
3	15
4	15
5	15
6	15
7	15
8	15
Total	100