

MATE 3063 assignment 3: section 14.2

21-22. Exercises 1,2 of §14.2.

23. Find the limit if it exists, or show that the limit does not exist. If the limit exists, show why it exists, do not simply state the value.

(a) Limit of $\ln(\sqrt{x-y})$ as $(x, y) \rightarrow (3, 2)$.

(b) Limit of $\frac{y^2 \sin^2 x}{x^4 + y^4}$ as $(x, y) \rightarrow (0, 0)$.

(c) Limit of $\frac{xy}{\sqrt{x^2 + y^2}}$ as $(x, y) \rightarrow (0, 0)$.

(d) Limit of $\frac{xy + yz}{x^2 + y^2 + z^2}$ as $(x, y, z) \rightarrow (0, 0, 0)$.

24 (a-b). Exercises 25, 26.

25. Determine the set of points where the function is continuous:

(a) $f(x, y) = \frac{e^x + e^y}{e^{xy} - 1}$.

(b) $f(x, y, z) = \sqrt{x + y^2} \ln z$.

26 (a-b). Exercises 37, 38.

27 (a-c). Exercises 39–41.