Continuous of Functions

Exercises

1.
Show that the implication

$$f \text{ and } g \text{ are continuous at } x_0 \;\Rightarrow\; f+g \text{ is continuous at } x_0$$

can not be reversed (see T. 5. 1.)

2.
Show that the implication

$$f \text{ and } g \text{ are continuous at } x_0 \;\Rightarrow\; f \cdot g \text{ is continuous at } x_0$$

can not be reversed (see T. 5. 2.)

3.
Prove that the function $y = x^2$ is continuous at an arbitrary point x_0.

4.
Prove that the function $y = \sin x$ is continuous at an arbitrary point x_0.

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