Functions test

Maths 3c

Non-calculator section

The questions marked as "bonus questions" are optional and will count if they are correct but not if they are wrong or unanswered.

Name:

1. Define

   a) Function: (1/0/0)

   b) Real variable real function:(1/0/0)

   c) The domain of a function:(1/0/0)

   d) Bonus question: draw the set map of the different kinds of numbers:(1/0/0)

2. Establish a function for the following situations:

   a) The mass of a carton of eggs depends on the number of eggs it contains: each egg has a mass of 50g and the carton itself has a mass of 15g. (0/1/0)

   b) The power of a solar power station depends on the surface area of the panels. It produces 140W of power per square meter of solar panel. (0/1/0)

c) A printer shop offers to print flyers under the following conditions: 1) Setting up the printer costs 300Kr. Each flyer costs 1kr to start with. The price per flyer is divided by the number of decimal figures of the order.(0/1/1)

3. In the examples of the previous exercise, find a function that:

   a) Is not discrete. (1/0/0)

   b) Is discrete. (1/0/0)

   c) Bonus question: come up with a function in which neither the input nor the output are numbers. (0/1/0)

4. Define the limit of a function when x approaches a number "a" (1/1/0)

5. Given the function
$$f(x) = \frac{x-2}{x^2 - 7x + 10}$$
It would be "stupid" to ask for the following limit:
$$\lim_{x \to 4} f(x)$$
But not for the following one:
$$\lim_{x \to 5} f(x)$$

Why one of them is "stupid" and the other isn't? (0/1/0)

6. Find a function that

   a) passes through the points (-3,0) and (2,3) (1/0/0)

   b) passes through the points (4,3), (1,-3) and (0,-1) (0/1/0)

   c) passes through the points (-1,-3) and (-1,4) (0/0/1)

   d) Bonus question: passes through the points (-1,-1), (-6, 4) and (-4,-4) (0/0/1)