ANSWER on Question 56902 Math. Calculus

QUESTION 1

The vertical asymptote of the function $y = \ln(x-6)+5$ is:

A:	x = -5
B:	x = 5
C:	x = -6
D:	x = 6

SOLUTION

The logarithmic function $\ln(x)$ is defined for

$$\forall x > 0 \; - \text{ it's means that the line } x = 0, \; - \text{ is vertical asymptote}$$

in our case

$$y = \ln(x-6)+5 \iff x-6>0 \iff x>6$$

$$x = 6 \; - \text{ is vertical asymptote}$$

ANSWER

D: x = 6

QUESTION 2

For the function $y = \ln(x+1)+5$, Which of the following statements are true?

A: The domain is $(-1,+\infty)$, and the range is all real numbers
B: The domain is all real numbers, and the range is $[5,+\infty)$.
C: The domain is $(1,+\infty)$, and the range is $[5,+\infty)$.
D: The domain is $(1,+\infty)$, and the range is all real numbers.

SOLUTION

The logarithmic function $\ln(x)$ is defined for

$$\forall x > 0 \; - \text{ it's means that domain of function is } x \in (0;+\infty)$$

in our case

$$y = y = \ln(x+1)+5 \iff x+1>0 \iff x>-1$$

$$x \in (-1;+\infty) \; - \text{ domain of } y$$

Only on this basis can we choose right answer!!!!

ANSWER

A: The domain is $(-1,+\infty)$, and the range is all real numbers