EMCF 04

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1. Give the value of x where the function $f(x)=\dfrac{x^2-2x+1}{x^2-1}$ has a removable discontinuity.
   a. 1
   b. -1
   c. There is no value of x.
   d. 2
   e. 0
   f. None of these.

2. Give the value of x where the function $f(x)=\dfrac{x^2-1}{x^2-2x+1}$ has an infinite discontinuity.
   a. 1
   b. -1
   c. There is no value of x.
   d. 2
   e. 0
   f. None of these.

3. Give a value of A so that the function $f(x)=\begin{cases} Ax-x^2, & x<2 \\ 2-3x, & x\geq 2 \end{cases}$
   is continuous.
   a. 1
   b. 0
   c. There is no such value.
   d. -1
   e. 2
   f. None of these.

4. $\lim\limits_{x\to 4}\dfrac{x^2-4}{x^2-3x-4}=$
   a. -1/2
   b. 1/3
   c. DNE
   d. 2
   e. 0
   f. None of these.

5. Give the value of x where the function $f(x)=\dfrac{x^2-1}{x^2-2x-3}$ has a removable discontinuity.

   a. 1
   b. -1
   c. There is no value of x.
   d. 2
   e. 0
   f. None of these.

6. Give the value of x where the function $f(x)=\dfrac{x^2-1}{x^2-2x-3}$ has an infinite discontinuity.

   a. 1
   b. -1
   c. There is no value of x.
   d. 2
   e. 0
   f. None of these.

7. Give a value of A so that the function $f(x)=\begin{cases} Ax-x^2, & x<1 \\ 2x^3-3x, & x\geq 1 \end{cases}$

   is continuous.

   a. 1
   b. 0
   c. There is no such value.
   d. -1
   e. 2
   f. None of these.

8. Let $f(x)=x^2-3x$. Give the value of $\lim\limits_{h\to 0}\dfrac{f(1+h)-f(1)}{h}$.

   a. 1
   b. -1
   c. -2
   d. DNE
   e. 2
   f. None of these.

9. Give the value of x where the function $f(x)=\dfrac{\left|x^2-1\right|}{(x+1)(x-2)}$ has a removable discontinuity.

   a. 1
   b. -1
   c. There is no value of x.
   d. 2
   e. 0
   f. None of these.

10. Give the value of x where the function $f(x)=\dfrac{\left|x^2-1\right|}{(x+1)(x+2)}$ has a jump discontinuity.

a. 1
b. -1
c. There is no value of x.
d. 2
e. 0
f. None of these.