



Choose the correct answer : 20 pts (2 pts each)

1) If f is an odd function and g is an even function then the following function is odd
:

- a) f^2
- b) $f \circ f$
- c) $g \circ g$
- d) $f.g$

2) $\lim_{x \rightarrow 4} \frac{\lfloor x \rfloor}{x^2} =$

- a) $\frac{5}{16}$
- b) $\frac{1}{4}$
- c) $\frac{3}{16}$
- d) DNE

3) $\lim_{x \rightarrow 0} \frac{x^2 - x + 2 \sin x}{2x} =$

- a) 1
- b) 0.5
- c) 1.5
- d) 2

4) The value of k such that the line $2x + ky = 3$ is perpendicular to the line $2x + \frac{1}{2}y = 1$
is :

- a) $\frac{1}{2}$
- b) 8
- c) $-\frac{1}{2}$
- d) -8

5) The domain of $f(x) = \frac{x+1}{\lfloor x \rfloor}$, is :

- a) $R - \{0\}$
- b) $R - (-1,1)$
- c) $R - [-1,0]$
- d) $R - (-1,0]$



6) $\lim_{x \rightarrow -2^+} \frac{-8}{x^2 - 4} = :$

- a) ∞
- b) -8
- c) $-\infty$
- d) 0

7) If $\sqrt{\frac{4-x^2}{9}} \leq f(x) \leq \frac{2-x}{3}$ for all x in $[-1,1]$ then $\lim_{x \rightarrow 0} f(x) = ,$

- a) $\frac{4}{9}$
- b) $\frac{2}{3}$
- c) 0
- d) DNE

8) The solution set of the inequality , $(x - 1)^2 < 4$, is :

- a) $(-1 , 3)$
- b) $(-3 , 5)$
- c) $(-3 , 3)$
- d) $(-3 , 1)$

9) The center and the radius of the circle , $x^2 + y^2 - 2y - 4 = 0$, are respectively :

- a) $C(1 , 1) , r = \sqrt{5}$
- b) $C(0 , 1) , r = 5$
- c) $C(0 , 1) , r = \sqrt{5}$
- d) $C(1 , 0) , r = \sqrt{5}$

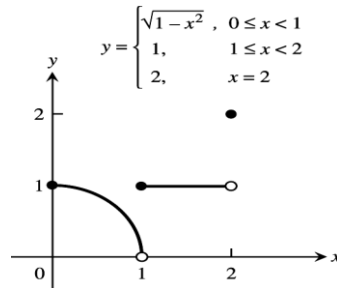
10)If $\lim_{x \rightarrow 1} (2f(x) + x - 3) = 6$, then $\lim_{x \rightarrow 1} (f(x))^{3/2}$

- a) 4
- b) 8
- c) 1
- d) DNE



Q2) 13 pts

Use the graph of $f(x)$ below to answer the following questions : (13 pts)



- 1- $\lim_{x \rightarrow 1.5} f(x) = \text{-----}$ (1 pts)
- 2- $\lim_{x \rightarrow 0^+} f(x) = \text{-----}$ (1 pts)
- 3- $\lim_{x \rightarrow 1^-} f(x) = \text{-----}$ (1 pts)
- 4- Range of $f = \text{-----}$ (2pts)
- 5- f is continuous for all x in : ----- (2 pts)
- 6- The type of discontinuity at $x = 1$ is : ----- (1 pts)
- 7- The type of left discontinuity at $x = 2$ is : ----- (1 pts)
- 8- If $g(x) = f(x - 2)$ then the graph of $g(x)$ is : (2 pts)

- 9- The graph of $h(x) = -f(x)$ is : (2pts)

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Course's Number : 15010101
Exam's Period : 1 H
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Q3) 14 pts

Find the following limits :

1- $\lim_{x \rightarrow 0} \frac{\sqrt{100+x} - 10}{x}$ (7 pts)

2- $\lim_{x \rightarrow 4} \frac{x^2 - 4x}{|x - 4|}$ (7 pts)

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Q4) 13pts

Find all the asymptotes (if exist) for $f(x) = \frac{4 - x^2}{x^2 + 3x + 2}$

Good luck