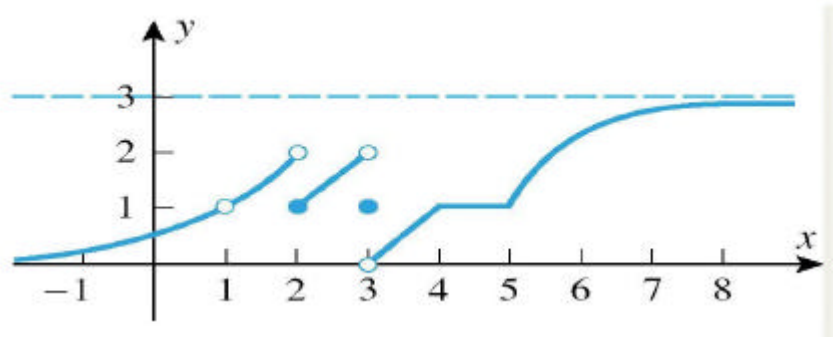
EXAM (1) FORM A



For the function f graphed in the accompanying figure, find

1) $\lim_{x\to 1} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 3
(d) -3
(e) does not exist

2) $\lim_{x\to 2} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 2
(d) -2
(e) does not exist

3) $\lim_{x\to 3} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 3
(d) -3
(e) does not exist

4) $\lim_{x\to 4} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 4
(d) -4
(e) does not exist

5 $\lim_{x\to+\infty} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 3
(d) -3
(e) does not exist

6) $\lim_{x\to-\infty} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 3
(d) 0
(e) does not exist

7 $\lim_{x\to 3^+} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 3
(d) 0
(e) does not exist

8) $\lim_{x\to 3^-} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 2
(d) -2
(e) does not exist

9) $\lim_{x\to 0} f(x) =$ (see figure)
(Ex 1, pg 165)
(a) 1
(b) -1
(c) 2
(d) $\frac{1}{2}$
(e) does not exist

10) Find $\lim_{x\to 2^-} \frac{x}{x^2-4} =$ (Ex19, pg130)
(a) 0
(b) 2
(c) -2
(d) $+\infty$
(e) $-\infty$

11) Find $\lim_{x\to 9} \frac{x-9}{\sqrt{x}-3} =$ (Ex29, pg130)
(a) 3
(b) -3
(c) 6
(d) -6
(e) does not exist

12) Find $\lim_{x\to 4^-} \frac{3-x}{x^2-2x-8} =$
(Ex25, pg130)
(a) 4
(b) 8
(c) -8
(d) $+\infty$
(e) $-\infty$

13) Find $\lim_{x\to -1}\dfrac{x^2+6x+5}{x^2-3x-4}=$
(Ex11, pg130)

(a) $-\dfrac{4}{5}$
(b) $\dfrac{5}{4}$
(c) 0
(d) $+\infty$
(e) $-\infty$

14) Find $\lim_{x\to -\infty}\dfrac{x-2}{x^2+2x+1}=$
(Ex15, pg136)

(a) 0
(b) -2
(c) 2
(d) $+\infty$
(e) $-\infty$

15) Find $\lim_{x\to +\infty}\sqrt[3]{\dfrac{2+3x-5x^2}{1+8x^2}}=$
(Ex17, pg136)

(a) $-\dfrac{5}{2}$
(b) $-\sqrt[3]{\dfrac{5}{2}}$
(c) -5
(d) $+\infty$
(e) $-\infty$

16) Find $\lim_{y\to -\infty}\dfrac{2-y}{\sqrt{7+6y^2}}=$
(Ex21, pg137)

(a) $\dfrac{1}{\sqrt{7}}$
(b) $\dfrac{1}{\sqrt{6}}$
(c) 1
(d) $+\infty$
(e) $-\infty$

17) Find $\lim_{x\to -\infty}\dfrac{\sqrt{3x^4+x}}{x^2-8}=$
(Ex23, pg137)

(a) $\dfrac{\sqrt{3}}{8}$
(b) $\sqrt{3}$
(c) 8
(d) $+\infty$
(e) $-\infty$

18) Find $\lim_{x\to +\infty}(\sqrt{x^2+3}-x)=$
(Ex31, pg137)

(a) 0
(b) 3
(c) -3
(d) $+\infty$
(e) $-\infty$

19) Given $\lim_{x\to -1}(7x+5)=-2, e=0.01$
find a number d such that
$|f(x)-L|<e$ if $0<|x-a|<d$
(Ex11, pg145)

(a) $d=\dfrac{1}{400}$
(b) $d=\dfrac{1}{500}$
(c) $d=\dfrac{1}{550}$
(d) $d=\dfrac{1}{600}$
(e) $d=\dfrac{1}{700}$

20) Find the values of x (if any) at which f is not continuous.

$f(x)=\dfrac{x-4}{x^2-16}$ (Ex17, pg157)

(a) x= 0, 4
(b) x= 0, -4
(c) x= 0, 4, -4
(d) x= 4, -4
(e) x= 0

21) Find the values of x (if any) at which f is not continuous.

$f(x)=\dfrac{x}{|x|-3}$ (Ex19, pg157)

(a) x= 0, 3
(b) x= 0, -3
(c) x= 0, 3, -3
(d) x= 3, -3
(e) x= 0

22) Let $f(x)=\dfrac{|x|}{x}$, which statement is true (Ex29(c), pg157)

(a) f has a removable discontinuity at x=0
(b) f(0)= 1
(c) $\lim_{x\to 0} f(x)=1$
(d) f is continuous at x=0
(e) f is discontinuous at x=0

23) Let $f(x)=\dfrac{x-2}{|x|-2}$, which statement is true (Ex29(a), pg157)

(a) f has removable discontinuity at $x=\pm 2$
(b) f has removable discontinuity at x=2 and a not removable discontinuity at x=-2
(c) f has removable discontinuity at x=2 and a continuity at x=-2
(d) $\lim_{x\to +2} f(x)=0$
(e) $\lim_{x\to -2} f(x)=1$

EXAM (1) FORM A

Name:	**ID #**	**Sec # (11) (28)**

24) $f(x)=\begin{cases} k^2x+1 & x>1 \\ k+1 & x=1 \\ 3kx-1 & x<1 \end{cases}$

(a) Find the values of k so that the function f has a removable discontinuity at x=1
(SHOW ALL YOUR WORK)

(b) Find the values of k so that the function f is continuous from the left at x=1
(SHOW ALL YOUR WORK)

25) State the intermediate value theorem.

26) Find $\lim_{x \to -\infty} \frac{x^4 + x^2 + 3x}{x + 1}$ **(SHOW ALL YOUR WORK)**

27) Find $\lim_{h \to 0} \frac{|2 + h| - 2}{h}$ **(SHOW ALL YOUR WORK)**

Multiple Choice Answers
(Fill the Correct Circle)
FORM A

	a	b	c	d	e
1	O	O	O	O	O
2	O	O	O	O	O
3	O	O	O	O	O
4	O	O	O	O	O
5	O	O	O	O	O
6	O	O	O	O	O
7	O	O	O	O	O
8	O	O	O	O	O
9	O	O	O	O	O
10	O	O	O	O	O
11	O	O	O	O	O
12	O	O	O	O	O
13	O	O	O	O	O
14	O	O	O	O	O
15	O	O	O	O	O
16	O	O	O	O	O
17	O	O	O	O	O
18	O	O	O	O	O
19	O	O	O	O	O
20	O	O	O	O	O
21	O	O	O	O	O
22	O	O	O	O	O
23	O	O	O	O	O

Question	Mark
MCQ	
24 (a)	
24 (b)	
25	
26	
27	