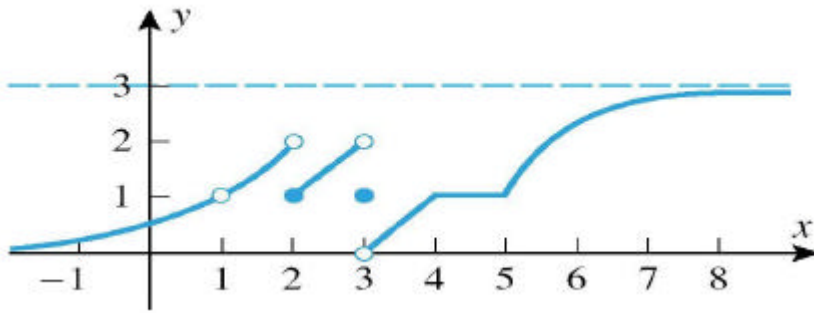


EXAM (1) FORM B



For the function f graphed in the accompanying figure, find

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

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

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

- 4) $\lim_{x \rightarrow 4} f(x) =$ (see figure)
(Ex 1, pg 165)
1
-1
4
-4
does not exist

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

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

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

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

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

- 10) Find $\lim_{x \rightarrow 9} \frac{x-9}{\sqrt{x}-3} =$ (Ex29, pg130)
(f) 3
(g) -3
(h) 6
(i) -6
(j) does not exist

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

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

<p>13) Find $\lim_{x \rightarrow \infty} \frac{x-2}{x^2+2x+1} =$ (Ex15, pgl36)</p> <p>(a) 0 (b) -2 (c) 2 (d) $+\infty$ (e) $-\infty$</p>	<p>14) Find $\lim_{x \rightarrow -1} \frac{x^2+6x+5}{x^2-3x-4} =$ (Ex11, pgl30)</p> <p>$-\frac{4}{5}$ $\frac{5}{4}$ 0 $+\infty$ $-\infty$</p>	<p>15) Find $\lim_{x \rightarrow +\infty} \sqrt[3]{\frac{2+3x-5x^2}{1+8x^2}} =$ (Ex17, pgl36)</p> <p>$-\frac{5}{2}$ $-\sqrt[3]{\frac{5}{2}}$ -5 $+\infty$ $-\infty$</p>
<p>16) Find $\lim_{x \rightarrow \infty} \frac{\sqrt{3x^4+x}}{x^2-8} =$ (Ex23, pgl37)</p> <p>(a) $\frac{\sqrt{3}}{8}$ (b) $\sqrt{3}$ (c) 8 (d) $+\infty$ (e) $-\infty$</p>	<p>17) Find $\lim_{y \rightarrow \infty} \frac{2-y}{\sqrt{7+6y^2}} =$ (Ex21, pgl37)</p> <p>$\frac{1}{\sqrt{7}}$ $\frac{1}{\sqrt{6}}$ 1 $+\infty$ $-\infty$</p>	<p>18) Find $\lim_{x \rightarrow +\infty} (\sqrt{x^2+3} - x) =$ (Ex31, pgl37)</p> <p>0 3 -3 (a) $+\infty$ (b) $-\infty$</p>
<p>19) Find the values of x (if any) at which f is not continuous. $f(x) = \frac{x-4}{x^2-16}$ (Ex17, pgl57)</p> <p>(a) $x=0, 4$ (b) $x=0, -4$ (c) $x=0, 4, -4$ (d) $x=4, -4$ (e) $x=0$</p>	<p>20) Given $\lim_{x \rightarrow -1} (7x+5) = -2, e = 0.01$ find a number d such that $f(x) - L < e$ if $0 < x - a < d$ (Ex11, pgl45)</p> <p>(a) $d = \frac{1}{400}$ (b) $d = \frac{1}{500}$ (c) $d = \frac{1}{550}$ (d) $d = \frac{1}{600}$ (e) $d = \frac{1}{700}$</p>	<p>21) Find the values of x (if any) at which f is not continuous. $f(x) = \frac{x}{ x -3}$ (Ex19, pgl57)</p> <p>(a) $x=0, 3$ (b) $x=0, -3$ (c) $x=0, 3, -3$ (d) $x=3, -3$ (e) $x=0$</p>
<p>22) Let $f(x) = \frac{x-2}{ x -2}$, which statement is true (Ex29(a), pgl57)</p> <p>(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) $\lim_{x \rightarrow +2} f(x) = 0$ (e) $\lim_{x \rightarrow -2} f(x) = 1$</p>	<p>23) Let $f(x) = \frac{ x }{x}$, which statement is true (Ex29(c), pgl57)</p> <p>(a) f has a removable discontinuity at $x=0$ (b) $f(0) = 1$ (c) $\lim_{x \rightarrow 0} f(x) = 1$ (d) f is continuous at $x=0$ (e) f is discontinuous at $x=0$</p>	

EXAM (1) FORM B

Name:

ID #

Sec # (11) (28)

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

(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.

Multiple Choice Answers
(Fill the Correct Circle)
FORM B

	a	b	c	d	e
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23	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

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

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