23
#1

Tuesday

Science Buddy

#1 Given that 2.3

$\lim_{x\to 2} f(x)=4$ $\lim_{x\to 2} g(x)=-2$ $\lim_{x\to 2} h(x)=0$

a) $\lim_{x\to 2}[f(x)+5g(x)]$

$\lim_{x\to 2}[4+5(-2)]$

$\lim_{x\to 2}[4-10]=\boxed{-6}$

b) $\lim_{x\to 2}[g(x)]^3$

$\lim_{x\to 2}[-2]^3=\boxed{-8}$

c) $\lim_{x\to 2}\sqrt{f(x)}$

$\lim_{x\to 2}\sqrt{4}=\boxed{2}$

d) $\lim_{x\to 2}\frac{3f(x)}{g(x)}$

$\lim_{x\to 2}\frac{3(4)}{-2}=\frac{12}{-2}=\boxed{-6}$

e) $\lim_{x\to 2}\frac{g(x)}{h(x)}$

$\lim_{x\to 2}\frac{-2}{0}=$ UND(doesn't exist)

f) $\lim_{x\to 2}\frac{g(x)h(x)}{f(x)}$

$\lim_{x\to 2}\frac{(-2)(0)}{4}=\frac{0}{4}=\boxed{0}$

=Ans

2.3 #1a

Tuesday Science Buddy

#1a:- Given that 2.3

$\lim_{x \to 3} f(x) = 6 \qquad \lim_{x \to 3} g(x) = -3 \qquad \lim_{x \to 3} h(x) = 0$

a)

$\lim_{x \to 3} [f(x) + 7g(x)]$

$\lim_{x \to 3} [6 + 7(-3)]$

$\lim_{x \to 3} [6 - 21] = \boxed{-15}$

b)

$\lim_{x \to 3} [g(x)]^2$

$\lim_{x \to 3} [-3]^2 = \boxed{9}$

c)

$\lim_{x \to 3} \frac{g(x)}{h(x)}$

$\lim_{x \to 3} \frac{-3}{0} = \text{UND}$ (doesn't exist)

d)

$\lim_{x \to 3} \frac{5f(x)}{g(x)}$

$\lim_{x \to 3} \frac{5(6)}{-3} = \frac{30}{-\cancel{3}} = \boxed{-10}$

e)

$\lim_{x \to 3} \sqrt{h(x)}$

$\lim_{x \to 3} \sqrt{0} = \boxed{0}$

f)

$\lim_{x \to 3} \frac{g(x)\, h(x)}{f(x)}$

$\lim_{x \to 3} \frac{(-3)(0)}{6} = \frac{0}{6} = \boxed{0}$

2.3 #1

We Love math

Jessica
Krystina
Stephanie

p. #1

$\lim_{x\to2} f(x) = 4$ $\lim_{x\to2} g(x) = -2$ $\lim_{x\to2} h(x) = 0$

a) $\lim_{x\to2} [f(x) + 5g(x)]$
$\lim_{x\to2} f(x) + \lim_{x\to2} 5g(x)$
$= \lim 4 + 5(-2)$
$\boxed{= -6}$

b) $\lim_{x\to2} [g(x)]^3$
$= \lim_{x\to2} g$
$\boxed{= -8}$

c) $\lim_{x\to2} \sqrt{f(x)}$
$= \lim_{x\to2} \sqrt{f(x)}$
$\boxed{= 2}$

d) $\lim_{x\to2} \frac{3f(x)}{g(x)}$
$= \frac{3(4)}{-2}$
$\lim_{x\to2} \frac{12}{-2} \boxed{= -6}$

e) $\lim_{x\to2} \frac{g(x)}{h(x)}$
$= \lim \frac{g(-2)}{h(0)}$ $\lim_{x\to2} \frac{-2}{0} = \frac{-2}{0}$

Limit does not exist.

f) $\lim_{x\to2} \frac{g(x)h(x)}{f(x)} = \frac{\lim_{x\to2} g(x) \cdot \lim h(x)}{\lim_{x\to2} f(x)}$
$\lim_{x\to2} (0) = 0$

2.3 #3

Ryan ZHAO Will Albito

Steve Nomemaker. B.A. IS BS

2.3:

3. $\lim_{x \to -2} (3x^4 + 2x^2 - x + 1)$

$\lim_{x \to -2} (3 \times (-2)^4 + 2(-2)^2 - (-2) + 1)$

$\lim_{x \to -2} 3 \times 16 + 2 \times 4 + 2 + 1$

$\lim_{x \to -2} 48 + 8 + 2 + 1$

$\lim_{x \to -2} 59$

2.3 #3A

Laquan Drummer
Sai Jahagirdar
Fabian Best

Team empire

3A

$$\lim_{x\to 3} 3(x^2+2x+1) = 3\lim_{x\to 3}(x^2+2x+1)$$

$$3(3^2+2(3)+1)=48 \qquad \lim_{x\to 3} 3(x^2+2x+1)=48$$

$$\lim_{x\to 3} 3(x^2+2x+1) = 3\lim(x^2+2x+1)$$

$$3(3^2+2(3)+1)=48$$

$$\lim_{x\to 3} 3(x^2+2x+1)=48$$

2,3
#7

Letrice
Wilgens
Viviene

Kick Ass.

2.3

#7.

$$\lim_{x\to 1}\left(\frac{1+3x}{1+4x^2+3x^6}\right)^3$$

limit used.

(5). $\lim_{x\to a}\frac{f(x)}{g(x)} = \frac{\lim_{x\to a} f(x)}{\lim_{x\to a} g(x)}$ if $\lim_{x\to a} g(x) \neq$

$$= \frac{\lim_{x\to 1}(1+3x)^3}{\lim_{x\to 1}(1+4x^2+3x^6)^3}$$

$$= \frac{(1+3(1))^3}{(1+4(1)^2+3(1)^6)^3}$$

$$= \left(\frac{1+3}{1+4+3}\right)^3$$

$$= \left(\frac{4}{8}\right)^3$$

$$\lim_{x\to 1}\left(\frac{1+3x}{1+4x^2+3x^6}\right)^3 = \frac{\cancel{64}\ \cancel{8}\ 1}{\cancel{512}\ \cancel{64}\ 8}$$

$$= \frac{1}{8}$$

2.3 #7

Team Kickass

2.3 7. $\lim_{x \to 1} \left(\frac{1+3x}{1+4x^2+3x^4} \right)$

$= \frac{3(1)+1}{3(1^4)+4(1^2)+1}$

$= \left(\frac{4}{8}\right)^3$

$= \frac{1}{8}$

!

(3) #11

2.3 Team Diesel 2/3/10

11. $\lim_{x \to 2} \frac{x^2+x-6}{x-2}$

$= \lim_{x \to 2} \frac{(x+3)(x-2)}{(x-2)}$

$= \lim_{x \to 2} (x+3) = 2+3 = 5$

5

Our Problem

$\lim_{x \to 3} \frac{x^2-9}{x+3}$

$= \lim_{x \to 3} \frac{(x-3)(x+3)}{(x+3)}$

$= \lim_{x \to 3} x-3 = 3-3 = 0$

0

2.3
#23

C.I.V.A.R.C.

Jason Kohlhepp
Ryan D'Souza
Stephen Mance

SECTION 2.3
PROB #23

$\boxed{23.}$ $\lim_{x\to 7} \frac{\sqrt{x+2}-3}{x-7} = \lim_{x\to 7} \frac{\sqrt{x+2}-3}{x-7} * \frac{\sqrt{x+2}+3}{\sqrt{x+2}+3} =$

$= \lim_{x\to 7} \frac{(x+2)-9}{(x-7)(\sqrt{x+2}+3)} = \lim_{x\to 7} \frac{(x-7)}{(x-7)(\sqrt{x+2}+3)} =$

$= \lim_{x\to 7} \frac{1}{\sqrt{x+2}+3} = \lim_{x\to 7} \frac{1}{\sqrt{9}+3}$ ≡

$$\boxed{\lim_{x\to 7} \frac{\sqrt{x+2}-3}{x-7} = \frac{1}{6}}$$

2.6
#2a

SAVE THE POLAR BEARS

Melva Avila, Jalisha Crews, Kristian Fener

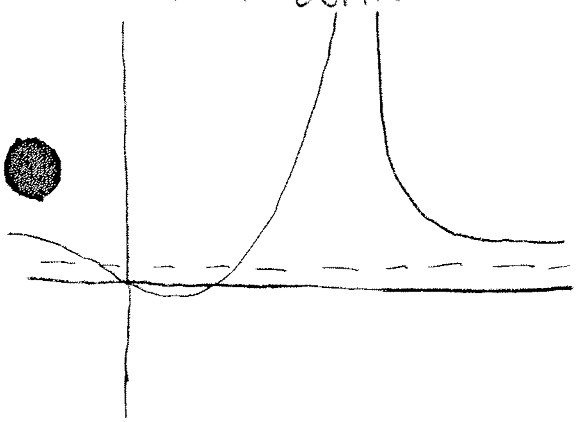
2.(a) Can the graph of $y = f(x)$ intersect a vertical asymptote?

no, the graph of $y = f(x)$ cannot intersect a vertical asymptote.

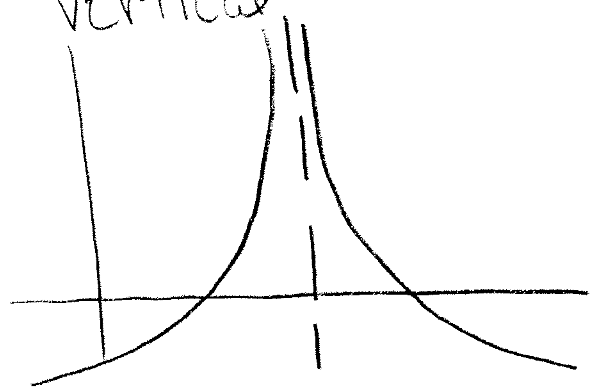
Can it intersect a horizontal asymptote?

Yes, the graph of $y = F(x)$ can intersect a horizontal asymptote.

horizontal

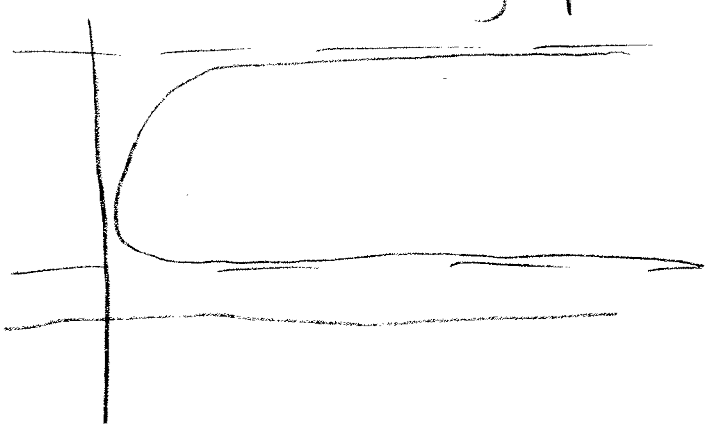


vertical



(b) How many horizontal asymptotes can the graph of $y = f(x)$ have?

The graph of $y = f(x)$ can have at most 2 horizontal asymptotes.

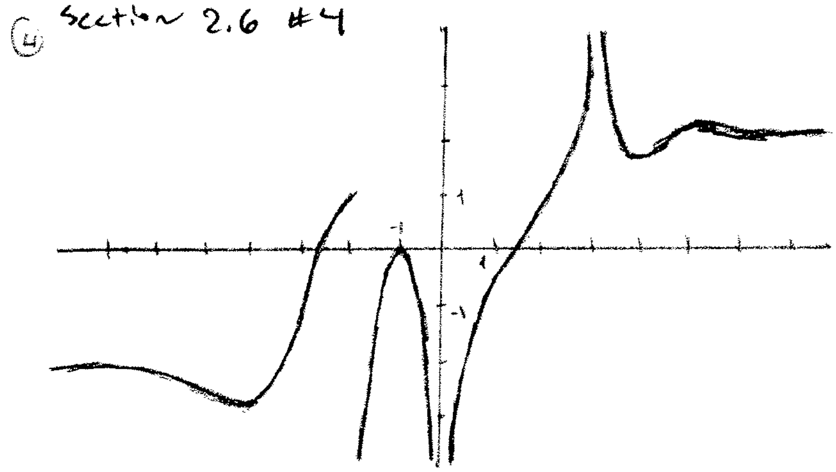


2.6
#4

THE GROUP

YVES MOSSULE
ABE EAPEN

(4) Section 2.6 #4



a) $\lim_{x \to \infty} g(x) = 2$

b) $\lim_{x \to -\infty} g(x) =$

c) $\lim_{x \to 3} g(x) = \infty$

d) $\lim_{x \to 0} g(x) = -\infty$

e) $\lim_{x \to -2^+} g(x) = -\infty$

f) $\lim_{x = 3}$, $x = C$

2.6
#7

1

Alpha
2/1/10
Jonathan Chen
Guan Zheng
Mike Cankhusky

MAT151... Team: α
2.6)#7

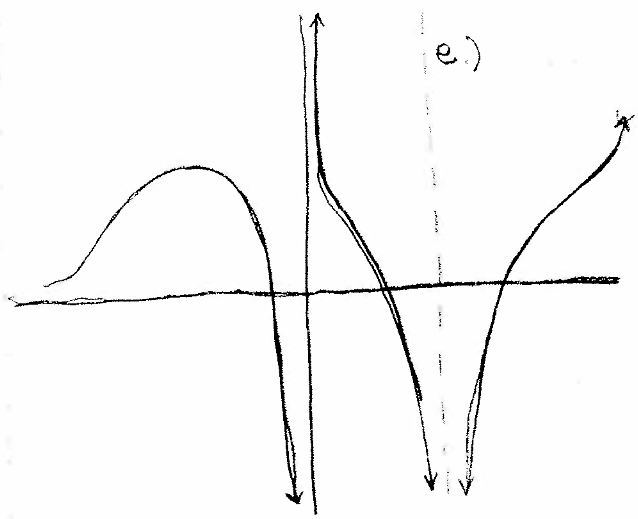
7.a) $\lim_{x \to 2} f(x) = -\infty$

b) $\lim_{x \to \infty} f(x) = \infty$

c) $\lim_{x \to -\infty} f(x) = 0$

d) $\lim_{x \to 0^+} f(x) = \infty$

e) $\lim_{x \to 0^-} f(x) = -\infty$

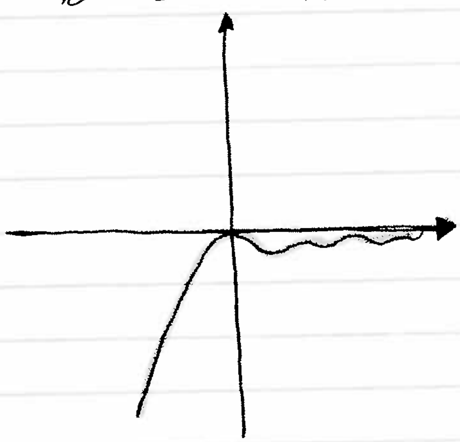


2.6 #11a

C.A.M.
03. Feb. 10

Section 2. 6) 11a.)

$$\lim_{x \to \infty} \frac{-x^2}{2^x}$$



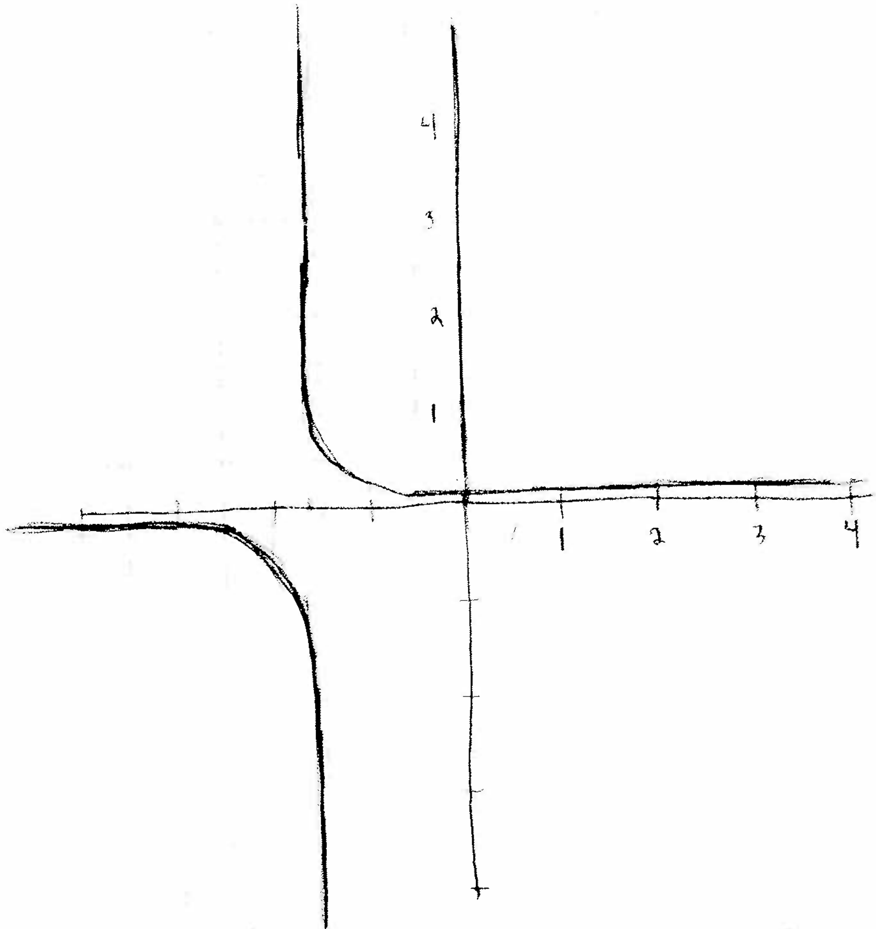
$f(0) = 0$
$f(1) = -.5$
$f(2) = -1$
$f(3) = -1.126$
$f(4) = -1$
$f(5) = -.7813$
$f(6) = -.5625$
$f(7) = -.3828$
$f(8) = -.25$
$f(9) = -.1582$
$f(10) = -.0977$
$f(20) = -4 \times 10^{-4}$
$f(50) = -2 \times 10^{-12}$
$f(100) = -8 \times 10^{-27}$

Casandra LoCeRO.
Augustin Ciolotisan.
Mandukhai Khosbayar.

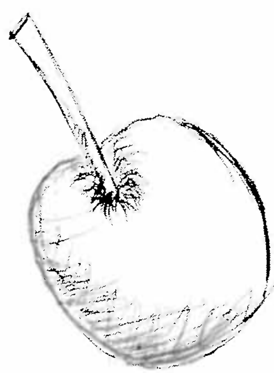
2.6 #15

GRUNDLE PUMPKINS

$$\lim_{x\to\infty}\frac{1}{2x+3} = \frac{\lim \frac{1}{x}}{\lim 2+\frac{3}{x}} = \frac{\lim \frac{1}{x}}{\lim 2 + 3\lim x} = \frac{0}{2+0} = 0$$



The limit of $\frac{1}{2x+3}$ as x approaches infinity is 0



796

TZG JUN NEW
Pablo Espinom
Sam Tobia

2.6 #21

A. $\lim_{x \to \infty} \frac{(x-4)(5x^3 - x + 6)}{(5x^2-3)(2x^2-10)}$

Pythagoreus

$\lim_{x \to \infty} \frac{5x^4 - x^2 + 6x - 20x^3 + 4x - 24}{10x^4 - 50x^2 - 6x^2 + 30}$

$\lim_{x \to \infty} \left(\frac{5x^4 - 20x^3 - x^2 + 10x - 24}{10x^4 - 56x^2 + 30} \right) \frac{\frac{1}{x^4}}{\frac{1}{x^4}}$

$\lim_{x \to \infty} \left(\frac{\frac{5x^4}{x^4} - \frac{20x^3}{x^4} - \frac{x^2}{x^4} + \frac{10x}{x^4} - \frac{24}{x^4}}{\frac{10x^4}{x^4} - \frac{56x^2}{x^4} + \frac{30}{x^4}} \right)$

$\lim_{x \to \infty} \left(\frac{5 - \overset{0}{\cancel{\frac{20}{x}}} - \overset{0}{\cancel{\frac{1}{x^2}}} + \overset{0}{\cancel{\frac{10}{x^3}}} - \overset{0}{\cancel{\frac{24}{x^4}}}}{10 - \overset{0}{\cancel{\frac{56}{x^2}}} + \overset{0}{\cancel{\frac{30}{x^4}}}} \right)$

$\lim_{x \to \infty} \frac{5}{10} = \frac{1}{2}$

21. $\lim_{u \to \infty} \frac{4u^4 + 5}{(u^2-2)(2u^2-1)}$

$\lim_{u \to \infty} \frac{(4u^4 + 5)\frac{1}{u^4}}{(2u^4 - 5u^2 - 2)\frac{1}{u^4}}$

$\lim_{u \to \infty} \frac{4 + \frac{5}{u^4}}{2 - \frac{5}{u^2} - \frac{2}{u^4}} = \frac{4}{2} = 2$