AQ7.5: Activity Questions 5 - Not Graded

**This assignment will not be graded and is only for practice.**

**Level 1:**

Define a function f(x)=xx2−5x+6*f*(*x*)=*x*2−5*x*+6*x*​. Then lim⁡x→1f(x)*x*→1lim​*f*(*x*) is

***1 point***

Define a function f(x)=(−x2+2)(x3+3)*f*(*x*)=(−*x*2+2)(*x*3+3). Then lim⁡x→1f(x)*x*→1lim​*f*(*x*) is

***1 point***

***1 point***

Define a function  
  
f(x)={1ifx≥0−1ifx<0*f*(*x*)={1−1​if*x*≥0if*x*<0​  
  
Which of the following option(s) is(are) true?

lim⁡x→2f(x)=−1*x*→2lim​*f*(*x*)=−1

lim⁡x→0f(x)=1*x*→0lim​*f*(*x*)=1

lim⁡x→ −0.5f(x)=−1*x*→ −0.5lim​*f*(*x*)=−1

Left limit at 0 i.e.,lim⁡x→0−f(x)=−1*x*→0−lim​*f*(*x*)=−1

Right limit at 0 i.e.,lim⁡x→0+f(x)=−1*x*→0+lim​*f*(*x*)=−1

Right limit at 0 i.e.,lim⁡x→0+f(x)*x*→0+lim​*f*(*x*) does not exist.

Limit of the function at 0 does not exist.

Limit of the function does not exist at any real number.

***1 point***

Define a function  
  
f(x)={xifx≤25ifx>2*f*(*x*)={*x*5​if*x*≤2if*x*>2​  
  
Which of the following option(s) is(are) true?

Limit exists at x=2*x*=2.

Right limit exists at x=2*x*=2.

Left limit at x=2*x*=2 is 2.

Right limit at x=2*x*=2 is -1.

***1 point***

Consider the following graph of a function in the Figure M2W1AQ-10, where bullet point represents the point included in the line segment and circle represents the point does not included in the line segment.  
  
A graph of a number of points

AI-generated content may be incorrect.  
  
  
Which of the following is(are) true?

Left limit exists at x=1*x*=1.

Left limit at x=3*x*=3 is 2.

Right limit at x=2*x*=2 is 2.

limit exists at x=3*x*=3.

Limit exists at every point x∈(2,3)*x*∈(2,3).

**Level 2:**

Consider the function f(x)=x2∣x∣*f*(*x*)=∣*x*∣*x*2​. Then lim⁡x→0f(x)*x*→0lim​*f*(*x*) is

***1 point***

Consider the following graph of a function in the Figure M2W1AQ 11,  where bullet point represents the point included in the curve and circle represents the  point does not included in the line segment.  Answer the following 2 questions.  
  
A graph of a function

AI-generated content may be incorrect.

***1 point***

Which of the following is(are) true?

Left limit at x=0*x*=0 is 0.

Limit exists at x=1*x*=1.

Limit exists at x=2*x*=2.

Limit exists at x=0*x*=0.

Limit exists at x=12*x*=21​ which is 100.

Limit exists at x=12*x*=21​ which is 0.

***1 point***

Which of the following is(are) true?

Function is increasing in the interval (1, 3).

Function is decreasing in the interval (1, 2).

Function is decreasing in the interval (-3, 0).

Function is decreasing in the interval (2, 3).

***1 point***

Which of the following option(s) is(are) true?

lim⁡x→ −1x2−6x−7x2+3x+2=−8*x*→ −1lim​*x*2+3*x*+2*x*2−6*x*−7​=−8

lim⁡x→0x2−6x−7x2+3x+2=−8*x*→0lim​*x*2+3*x*+2*x*2−6*x*−7​=−8

lim⁡x→2(x3+4x2−6x−7)=5*x*→2lim​(*x*3+4*x*2−6*x*−7)=5

lim⁡x→3x2−6x+9x−3=1*x*→3lim​*x*−3*x*2−6*x*+9​=1

***1 point***

Which of the following option(s) is(are) true?

lim⁡x→∞1x=0*x*→∞lim​*x*1​=0

lim⁡x→∞x21+x=1*x*→∞lim​1+*xx*2​=1

lim⁡x→−∞1+xx2=0*x*→−∞lim​*x*21+*x*​=0

lim⁡x→∞1+x+x25x2+1=15*x*→∞lim​5*x*2+11+*x*+*x*2​=51​

lim⁡x→∞x2021+x2020+…+x+1x2021+2021x2020+…+2021=2021*x*→∞lim​*x*2021+2021*x*2020+…+2021*x*2021+*x*2020+…+*x*+1​=2021