Q1) Find the value of a for which  is continuous.



a) 1

b) 2

c) 3

d) 4  
Correct answer: Option (c)  
Explanation: - For  to be continuous at 



  
Hence, option is 

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q2)

Find the point where  is discontinuous

a) 

b) 

c) 

d)None of the above

Correct answer: Option (a)  
Explanation: Denominator is 0 at   
Hence, option is (a)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q3) Find the number of points in  where  is discontinuous.

a) 2

b) 3

c) 1

d) None of the above

Correct answer: Option (b)

Explanation: - 

It is discontinuous where 

 

We get  where  is discontinuous

 

We get  where  is discontinuous



We get  where  is discontinuous in 3 Points.

Hence, option is (b)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q4) Find the point where  is discontinuous

a) 

b) 

c) 

d) None of the above

Correct answer: Option (a)

Explanation: - 

 is discontinuous at 

Hence, Option is (a)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$  
Q5) Find the number of points where  is continuous in 

a) 1

b) 0

c) R

d) 

Correct answer: option (c)

Explanation: - 

It is continuous for 

Hence, the option 

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q6) Find the value of a for which is not continuous at any.  


a)

b) 

c) 

d) None of the above

Correct answer: Option (c)

Explanation: - 

For f(x) not to be continuous at any value of x



Hence, option is (c)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q7)   
Find the point where  is discontinuous.

a) 

b) 

c) 

d) None of the above

Correct answer: Option (a)

Explanation: -



Hence, option is (a)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q8) Find the number of points where  is discontinuous.

a) 0

b) 1

c) 2

d) All points

Correct answer: Option (a)

Explanation: - is discontinuous where denominator is 0



So it always continuous.  
Hence, option is (a)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q9) Find the value of k for which is continuous at.

a) 25

b) 75

c) 0

d) 5

Correct answer: Option (b)

Explanation: - 



Hence, Option is (b)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q10) Find the point where  is discontinuous.

a) 

b) 

c) 

d) 

Correct answer: option (b)

Explanation: - 

It is discontinuous at



Hence, the option (c)

Difficulty Level- Easy

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q11) then .

a) continuous at 

b) not defined at 

c) Not continuous at 

d) None of these.

Correct answer: Option (a)

Explanation: - 

is continuous everywhere.

So,  is continuous at 

Hence, option is (a)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q12) If  find the value of

 if is continuous at .

a) 

b) 

c) 

d) 

Correct answer: Option (c)

Explanation: - 





We get 

Hence, option is (c)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q13) If , then find the points where function is continuous.

a)

b)  and 

c)  and 

d)  and 

Correct answer: Option (d)

Explanation:  is continuous were







Hence, Option is 

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q14) If 

Is continuous at, then  is equal to: -

a) 

b) 

c) 

d) 

Correct answer: Option (a)

Explanation: 



Using L-hospital 









Hence, option is (a)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q15) Find the number of points where is discontinuous 

a) 

b) 

c) 

d) 

Correct answer: Option (d)

Explanation: 

It takes integer values at which it is discontinuous.



Hence, it is discontinuous at 2 points

Hence, option is (d)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q16) Find points where Is discontinuous.

a)

b)

c) 

d) 

Correct answer: Option (d)

Explanation:is discontinuous at 



Hence, option is (d)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q17) If  find the value of

 if  is continuous at .

a) 

b) 4

c) 

d) Both a and b

Correct answer: Option (d)

Explanation:







Hence, option is (d)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q18) If is continuous at Find.

a) 0

b) 

c) 1

d) 

Correct answer: Option (c)

Explanation: 

Hence, Option is (c)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q19) If  is continuous at, then: -

a) 

b) 

c) 

d)

Correct answer: Option (d)

Explanation:



Hence, option is (d)

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q20) If   is continuous at  then  is

a) 6

b) 

c) 

d) 

Correct answer: Option (b)

Explanation:



Hence (b) is correct answer.

Difficulty Level- Medium

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q21) The differentiability of the function 



a) Differentiable at 

b) Non-differentiable at 

c) Differentiable at 

d) None of the above.

Correct answer: option (b)

Explanation:





 is not differentiable at 

Hence, (b) is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q22) If  Find values of m and b for which  is differentiable everywhere.

a) 

b) 

c) 

d) 

Correct answer: option (c)

Explanation:

 is continuous at 





 

 is differentiable at 







Putting  in , we have:





Hence, (c) is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q23) Let  If  is differentiable everywhere, then  is

a) 

b) 

c) 

d) 

Correct answer: option (d)

Explanation: 



 is continuous and differentiable at 









We get, 



Hence,  is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q24) if function  is differentiable at  then is

a) 

b) 

c) 

d) 

Correct answer: option (c)

Explanation: For 





Therefore, 

Hence,  is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q25) , then

a)  is continuous at  and at 

b)  is non-differentiable at 

c)  is continuous and differentiable at 

d)  is only continuous at .

Correct answer: option (a)

Explanation: 

So,  is continuous function.

 is clearly not differentiable at 







 is not differentiable at 

Hence,  is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q26) The set of all points where the function is differentiable is

a) 

b) 

c) 

d) None of these.

Correct answer: option (c)   
Explanation: For  



Also, 





 is not differentiable at 

Hence, (c) is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q27) Let  then 

a) Doesn’t exist

b) is equal to 2

c) is equal to -2

d) is equal to 0

Correct answer: option (c)

Explanation: 

Let 











If 



Hence, 

Hence, (c) is option.

Difficulty Level- Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q28) If, .Find 

a) 

b) 

c) 

d) 

Correct answer: Option (b)

Explanation: 



=

  


Hence, the option is (b).

Difficulty Level- Very Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q29) Find the value of if?

a) 

b) 

c) 

d) None of the above

Correct answer: Option (a)

Explanation:







Hence, option is (a).

Difficulty Level- Very Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q30) Find the value of if 

a) 

b) 

c) 

d) 

Correct answer: Option (a)

Explanation:



Hence, the option is (a).

Difficulty Level- Very Hard

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$