**Problems on Limits and Continuity**

*Due date***: Srawan 14, 2081**

**Prove using definition that**

1. → = 0

2. → = 0

3. → = 0

4. → *x* = 4

5. → *y* = –3

**Prove that each of the following limits does not exist.**

6. →

[*Hint*: (a) Along the path *y* = 0. (b) Along the path *x* = 0.]

7. →

[*Hint*: Along the path *y* = *mx*.]

8. →

[*Hint*: (a) Along the path *y* = *mx*. (b) Along the path *x* = 0.]

9. →

[*Hint*: (a) Along the path *y* = *mx*. (b) Along the path *y* = *x*2.]

10. →

[*Hint*: (a) Along the path *y* = 2. (b) Along the path *y* = *x* + 1.]

11. →

[*Hint*: (a) Along the path *x* = 0. (b) Along the path *y* = *x*2.]

12. →

[*Hint*: Along the path *y* = 0.]

**Find the limit and discuss the continuity of the function.**

13. → (2*x*2 + *y*)

14. → (*x* + 4*y* + 1)

15. → *exy*

16. →

17. →

18. →

19. →

20. →

21. →π *y* cos *xy*

22. →π sin

23. →

24. →

25. →

26. → *xeyz*