1. \( \lim_{(x,y) \to (0,0)} \frac{x}{y - x} \),

2. \( \lim_{(x,y) \to (0,0)} \frac{xy}{x - y} \),

3. \( \lim_{(x,y) \to (0,0)} \frac{x - y}{x + y} \),

4. \( \lim_{(x,y) \to (0,0)} \frac{1}{x^2 + y^2} \),

5. \( \lim_{(x,y) \to (0,0)} \frac{xy}{x^2 + y^2} \),

6. \( \lim_{(x,y) \to (0,0)} \frac{x^2 - y^2}{x^2 + y^2} \),

7. \( \lim_{(x,y) \to (0,0)} \frac{x^2y}{x^2 + y^2} \),

8. \( \lim_{(x,y) \to (0,0)} \frac{x^2y^2}{x^2 + y^2} \),

9. \( \lim_{(x,y) \to (0,0)} \frac{x^3y^3}{x^2 + y^2} \),

10. \( \lim_{(x,y) \to (0,0)} \frac{x^2}{x^2 + y^2} \),

11. \( \lim_{(x,y) \to (0,0)} \frac{x^3}{x^2 + y^2} \),

12. \( \lim_{(x,y) \to (0,0)} \frac{x^4y}{x^2 + y^2} \),

13. \( \lim_{(x,y) \to (0,0)} \frac{2x^2 + y^2}{x^2 + y^2} \),

14. \( \lim_{x \to \infty} \frac{x + y}{x^2 - xy + y^2} \).
15. \( \lim_{(x,y) \to (0,0)} \frac{x^2 y^2}{x^2 y^2 + (x - y)^2} \),

16. \( \lim_{(x,y) \to (0,0)} \frac{x - y}{(x + y)^3} \),

17. \( \lim_{(x,y) \to (0,0)} \frac{xy^2}{x^2 + y^4} \),

18. \( \lim_{(x,y) \to (0,0)} \frac{x^2 y}{x^4 + y^2} \),

19. \( \lim_{(x,y) \to (0,0)} \frac{x^3}{2x^2 + y^4} \),

20. \( \lim_{(x,y) \to (0,0)} \frac{x^3 + y}{2x^2 + y^4} \),

21. \( \lim_{(x,y) \to (0,0)} \frac{x^2 \cdot y^2}{x^4 + y^2} \),

22. \( \lim_{(x,y) \to (0,0)} \frac{x^4 - y^4}{x^4 + y^4} \),

23. \( \lim_{(x,y) \to (0,0)} \frac{xy}{(x^2 + y^2)^2} \),

24. \( \lim_{y \to \infty} \frac{x^2 + y^4}{x^4 + y^2} \),

25. \( \lim_{(x,y) \to (0,0)} \frac{xy}{3 - \sqrt{xy + y}} \),

26. \( \lim_{(x,y) \to (0,0)} \frac{\sqrt{9 + x^2 + y^2} - 3}{x^2 + y^2} \),

27. \( \lim_{(x,y) \to (0,0)} \frac{x^2 + y^2}{\sqrt{x^2 + y^2 + 1} - 1} \),
28. \( \lim_{(x,y) \to (0,0)} \frac{\sin xy}{y}, \)

29. \( \lim_{(x,y) \to (0,0)} \frac{\sin(x^3 + y^3)}{x^2 + y^2}, \)

30. \( \lim_{(x,y) \to (0,0)} \frac{\sin xy}{xy}, \)

31. \( \lim_{(x,y) \to (2,0)} \frac{\sin(xy^2)}{y^2 + (x - 2)^2}, \)

32. \( \lim_{x \to \infty \ y \to \infty} \left( x^2 + y^2 \right) \sin \frac{1}{x^2 + y^2}, \)

33. \( \lim_{(x,y) \to (1,0)} \sin \frac{\pi}{x^2 + y^2}, \)

34. \( \lim_{(x,y) \to (0,0)} x \cdot \sin \frac{1}{x^2 + y^2}, \)

35. \( \lim_{(x,y) \to (0,0)} \frac{x \cdot \sin \frac{1}{x} + y}{x + y}, \)

36. \( \lim_{(x,y) \to (0,0)} x \cdot \sin \frac{1}{y}, \)

37. \( \lim_{(x,y) \to (0,0)} \left( 1 + x^2 + y^2 \right) \frac{1}{x^2 + y^2}, \)

38. \( \lim_{(x,y) \to (0,0)} \left( 1 + x^4 y^4 \right) \frac{1}{x^2 + y^2}, \)

39. \( \lim_{(x,y) \to (0,0)} \frac{e^{-\frac{1}{x^2 + y^2}}}{x^4 + y^4}, \)

40. \( \lim_{(x,y) \to (0,0)} \frac{e^{x^2+y^2} - 1}{x^2 + y^2}, \)