Tutorial Sheet
Function ; Domain & Range

Problems :

\# Find out the domain and range of the following functions:

1. $f(x) = \dfrac{1}{x-3}$

2. $f(x) = \sqrt{x^2 - 9}$

3. $f(x) = \sqrt{9 - x^2}$

4. $f(x) = \sqrt{x^2 - 5x + 6}$

5. $f(x) = \dfrac{x}{|x|}$

6. $f(x) = x^3 + 2$

7. $f(x) = \begin{cases} x+2 & ,x \le -1 \\ x^3 & ,|x| < 1 \\ -x+3 & ,x \ge 1 \end{cases}$

8. $f(x) = \begin{cases} \dfrac{x^2 - 1}{x - 1} & ,x \ne 1 \\ 2 & ,x = 1 \end{cases}$

9. $f(x) = 3\,Sinx$

10. $f(x) = -\sqrt{x^2 - 7x + 10}$

11. $f(x) = \dfrac{2x}{x-4}$

12. $f(x) = \dfrac{1}{5x + 7}$

13. $f(x) = \ln(x^2 + 1)$

14. $f(x) = \begin{cases} x^2 & ,x < 0 \\ x & ,0 \le x \le 1 \\ \dfrac{1}{x} & x > 1 \end{cases}$

15. $f(x) = \begin{cases} 2x + 6 & ,-3 \le x \le 0 \\ 6 & ,0 < x < 2 \\ 2x - 6 & ,2 \le x \le 5 \end{cases}$

16. $f(x) = Sin^2 x$

17. $f(x) = e^x$

18. $f(x) = Logx$

19. $f(x) = \sqrt{2x + 4}$