

**MTH101 Practice Questions**  
**Lecture No.7: Operations on Functions**

**Q.No.1:** Consider the functions  $f(x) = (x-2)^3$  and  $g(x) = \frac{1}{x^2}$ . Find the composite function  $(f \circ g)(x)$  and also find the domain of this composite function.

**Q.No.2:** Let  $f(x) = x+1$  and  $g(x) = x-2$ . Find  $(f + g)(2)$ .

**Q.No.3:** Let  $f(x) = x^2 + 5$  and  $g(x) = 2\sqrt{x}$ . Find  $(g \circ f)(x)$ . Also find the domain of  $(g \circ f)(x)$ .

**Q.No.4:** Given  $f(x) = \frac{3}{x-2}$ , and  $g(x) = \sqrt{\frac{1}{x}}$ . Find the domain of these functions. Also find the intersection of their domains.

**Q.No.5:** Given  $f(x) = \frac{1}{x^2}$  and  $g(x) = \frac{2}{x-2}$ , find  $(f - g)(3)$ .