

### Quiz # 1 Solutions

Each problem was worth five points for a total of 25.

1. The denominator is zero when  $1 - e^x = 0$ , that is, when  $e^x = 1$  or  $x = 0$ . Thus the domain is all real numbers except  $x = 0$

or

$$(-\infty, 0) \cup (0, \infty).$$

- 2.

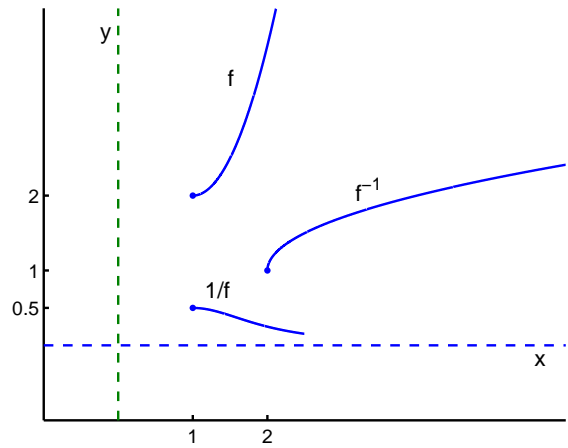
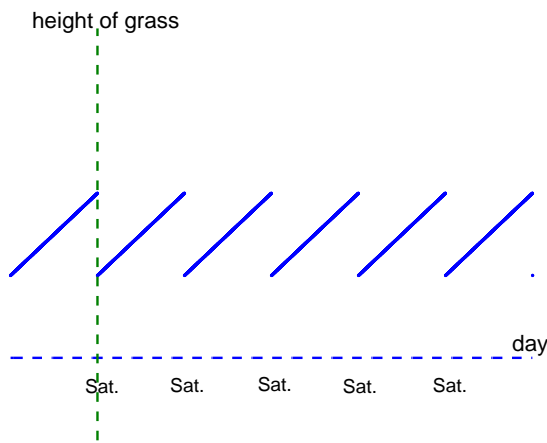
$$(f \circ g)(x) = f(g(x)) = \sin(1 - \sqrt{x}); \quad \text{domain: } x \geq 0 \text{ or } [0, \infty)$$

$$(g \circ f)(x) = g(f(x)) = 1 - \sqrt{\sin x}; \quad \text{domain: } \sin x \geq 0$$

$$\text{or } \dots [-2\pi, -\pi] \cup [0, \pi] \cup [2\pi, 3\pi] \cup \dots$$

$$(f \circ f)(x) = f(f(x)) = \sin(\sin x); \quad \text{domain: all } x \text{ or } (-\infty, \infty)$$

- 3 & 4.



- 5.

