

Math 111 – Quiz 6

Name Key

For $f(x) = x^2 + 5$, and $g(x) = 2x$

a) Find $f \circ g(x)$ and its domain

$$\begin{aligned} f(g(x)) &= (2x)^2 + 5 \\ &= 4x^2 + 5 \end{aligned}$$

Domain: \mathbb{R} or $(-\infty, \infty)$

b) Find $g \circ f(x)$ and its domain

$$\begin{aligned} g \circ f(x) &= g(f(x)) \\ &= 2(x^2 + 5) = 2x^2 + 10 \end{aligned}$$

Domain: \mathbb{R} or $(-\infty, \infty)$

c) Find $\frac{f}{g}(x)$ and its domain

$$\frac{f}{g}(x) = \frac{x^2 + 5}{2x}$$

Domain: $\{x \mid x \neq 0\}$