

No books or notes allowed. No laptop, graphic calculator or wireless devices allowed. Write clearly.

Name: \_\_\_\_\_

1. Let

$$f(x) = \sqrt{x+1} \qquad g(x) = 2x^2 - 9.$$

(a) (5 points) Find  $f \circ g$  and specify its domain.

**Solution:**

$$f \circ g(x) = \sqrt{2x^2 - 8} \qquad (1)$$

The domain of  $f \circ g$  is

$$D(f \circ g) = (-\infty, -2] \cup [2, \infty) \qquad (2)$$

(b) (5 points) Find  $g \circ f$  and specify its domain.

**Solution:**

$$g \circ f(x) = 2x - 7 \qquad (3)$$

The domain of  $g \circ f$  is

$$D(g \circ f) = [-1, \infty) \qquad (4)$$

since  $D(f) = [-1, \infty)$ .