Function Composition

Defining Composite Functions: $h(x) = g(f(x))$ $\qquad\qquad$ $h(x) = (g \circ f)(x)$

Read as:

Ex. $f(x) = 3x$ and $g(x) = x^2 + x$

Find $(f \circ g)(2)$ $\qquad\qquad\qquad$ $(f \circ g)(x)$ $\qquad\qquad\qquad$ $(f \circ g)(2x+1)$

Consider the functions $f(x) = \sqrt{x-3}$ and $g(x) = x^2 + 2$.

Find $(f \circ g)(x)$ $\qquad$ $(f \circ g)(2)$ $\qquad\qquad$ $(g \circ f)(x)$ $\qquad\qquad$ $(g \circ f)(4)$
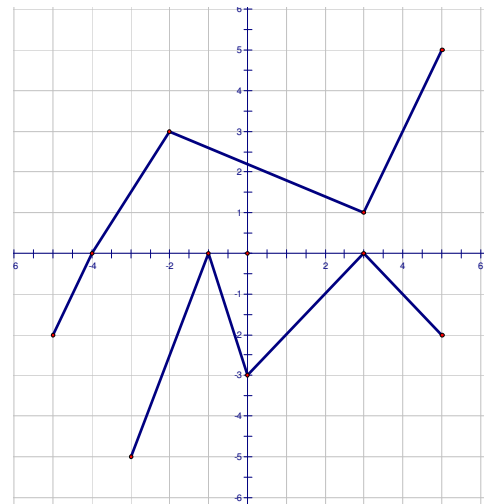
What is the domain and range of $(f \circ g)(x)$ and $(g \circ f)(x)$

Use the graph to compute the following values:

a. $(g \circ f)(-4) = $ _____

b. $(f \circ g)(3) = $ _____

c. $(f \circ f)(-2) = $ _____

d. $(g \circ g)(3) = $ _____

e. $(g \circ f)(-5) = $ _____

The 2005 Dodge Durango 5.9L SUV has a city driving gasoline mileage rating of approximately 0.2 L/km.

The cost of gasoline is $1.45/L.

a)   Write the volume of fuel used as a function of the distance driven

b)   Write the cost of fuel as a function of the volume

c)   Create a composition function to give the cost as a function of distance.

HW: pg. 507 #1-5,7,8