Precalculus 115, section 2.7 Combining Functions

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For this section, be sure to also refer to the handout "Chapter 2.6 Examples and Extra Notes".

Example A: Given $f(x)=2x+1$ and $g(x)=x^2+x$, find $f-g=(f-g)(x)$ and specify its domain.

Example B: Given $g(x)=x^2+x$ and $h(x)=\dfrac{x+1}{x-1}$, find $\dfrac{g}{h}=\left(\dfrac{g}{h}\right)(x)$ and specify its domain.

Example C: Given $f(x)=2x+1$, $g(x)=x^2+x$ and $h(x)=\dfrac{x+1}{x-1}$, find each of the following compositions and for 1 through 3, specify their domains.

1. $f\circ g=(f\circ g)(x)$

2. $g\circ f=(g\circ f)(x)$

3. $h \circ f = (h \circ f)(x)$

4. $f \circ g = (f \circ g)(-1)$

Example D: Express the following functions in the form $f \circ g$.

1. $F(x) = |7x - 1|$

2. $G(x) = \left(x^2 - 3\right)^3 + 2$