$f(x) = 2 - 4x$ ; $g(x) = \cos x$. $D = (-\infty, \infty)$ for both $f$ and $g$ , and hence for their composites.

(a) $(f \circ g)(x) = f(g(x)) = f(\cos x) = 2 - 4\cos x$.

(b) $(g \circ f)(x) = g(f(x)) = g(2 - 4x) = \cos(2 - 4x)$.

(c) $(f \circ f)(x) = f(f(x)) = f(2-4x) = 2-4(2-4x) = 2-8+16x = 16x-6$.

(d) $(g \circ g)(x) = g(g(x)) = g(\cos x) = \cos(\cos x)$     [Note that this is *not* $\cos x \cdot \cos x$.]