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SEC 2.3
PROBS cont'd.

Date
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(11) $f(x) = x+1$, $g(x) = 3x^2 - 2x - 1$

a) $(f \circ g)(x) = f(g(x)) = f(3x^2 - 2x - 1)$
 $= 3x^2 - 2x - 1 + 1$

Dom. $(-\infty, \infty)$ $\boxed{= 3x^2 - 2x}$

b) $(g \circ f)(x) = g(f(x)) = g(x+1)$
 $= 3(x+1)^2 - 2(x+1) - 1$
 $= 3(x^2 + 2x + 1) - 2x - 2 - 1$
 $= 3x^2 + 6x + 3 - 2x - 3$

Dom. $(-\infty, \infty)$ $\boxed{= 3x^2 + 4x}$

(17) $f(x) = 3x - 7$, $g(x) = \frac{x+7}{3}$

a) $(f \circ g)(x) = f(g(x)) = f\left(\frac{x+7}{3}\right)$
 $= 3\left(\frac{x+7}{3}\right) - 7$

$= x + 7 - 7$
 $\boxed{= x}$

Dom. $(-\infty, \infty)$

b) $(g \circ f)(x) = g(f(x)) = g(3x - 7)$
 $= \frac{(3x - 7) + 7}{3}$
 $= \frac{3x}{3}$
 $\boxed{= x}$