

Section:

Follow the instructions in each problem.

**Show supporting work, not just a final answer, to receive credit on a problem.**

1. (5 pts) Let  $g(x) = 3x^2 - 2x + 1$  and  $h(x) = x + 2$ . Find and simplify  $g(x) \cdot h(x)$ .

$$\begin{aligned}g(x) \cdot h(x) &= (3x^2 - 2x + 1) \cdot (x + 2) \\&= x(3x^2 - 2x + 1) + 2(3x^2 - 2x + 1) \\&= 3x^3 - 2x^2 + x + 6x^2 - 4x + 2 \\&= 3x^3 + 4x^2 - 3x + 2\end{aligned}$$

2. (5 pts) Factor  $9x^4 - 4y^2$ .

$$\begin{aligned}9x^4 - 4y^2 &= (3x^2)^2 - (2y)^2 \\&= (3x^2 - 2y)(3x^2 + 2y)\end{aligned}$$