

Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Find  $f$  if  $f''(x) = 6x + 12x^2$ .

$$f''(x) = 6x + 12x^2$$

$$\begin{aligned} f'(x) &= 6 \cdot \frac{1}{2} x^2 + 12 \cdot \frac{1}{3} x^3 + C \\ &= 3x^2 + 4x^3 + C \end{aligned}$$

$$f(x) = 3 \cdot \frac{1}{3} x^3 + 4 \cdot \frac{1}{4} x^4 + Cx + D$$

$$\underline{\underline{f(x) = x^3 + x^4 + Cx + D.}}$$

Good