



## Applications and Extensions

 In Problems 117–126, expressions that occur in calculus are given. Factor completely each expression.



**117.**  $2(3x + 4)^2 + (2x + 3) \cdot 2(3x + 4) \cdot 3$

**119.**  $2x(2x + 5) + x^2 \cdot 2$

 **121.**  $2(x + 3)(x - 2)^3 + (x + 3)^2 \cdot 3(x - 2)^2$

**123.**  $(4x - 3)^2 + x \cdot 2(4x - 3) \cdot 4$

**125.**  $2(3x - 5) \cdot 3(2x + 1)^3 + (3x - 5)^2 \cdot 3(2x + 1)^2 \cdot 2$

**118.**  $5(2x + 1)^2 + (5x - 6) \cdot 2(2x + 1) \cdot 2$

**120.**  $3x^2(8x - 3) + x^3 \cdot 8$

**122.**  $4(x + 5)^3(x - 1)^2 + (x + 5)^4 \cdot 2(x - 1)$

**124.**  $3x^2(3x + 4)^2 + x^3 \cdot 2(3x + 4) \cdot 3$

**126.**  $3(4x + 5)^2 \cdot 4(5x + 1)^2 + (4x + 5)^3 \cdot 2(5x + 1) \cdot 5$