MAT 104 Quiz 12

Wednesday, October 3, 2004

1. Multiply $(2x^3y)(4x^3y^4)$

   To multiply monomials, multiply the coefficients and *add* the exponents. So

   $$(2x^3y)(4x^3y^4) = 8x^7y^5$$

2. Multiply $(x+y)(x^2-xy+y^2)$

   Here we distribute each term in $(x+y)$ to every term in $(x^2 - xy = y^2$, and then combine like terms.

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

3. Multiply $(x+3)(x^2-x-1)$

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