

MAT 104 Quiz 15  
Wednesday, October 20, 2004

1. Factor completely

$$2x^2 - x - 3$$

$$(2x^2 - x - 3) = (2x - 3)(x + 1)$$

2. Factor

$$6x^2 - 7xy - 3y^2$$

$$6x^2 - 7xy - 3y^2 = (3x + y)(2x - 3y)$$

3. Factor

$$10x^4y^3 - 16x^3y^4 + 6x^2y^5$$

Your first step in factoring should be to factor out the gcd of all of the terms. The remaining polynomial will be much simpler to split up. For this polynomial, the gcd is  $2x^2y^3$ . So our polynomial factors as

$$\begin{aligned} 10x^4y^3 - 16x^3y^4 + 6x^2y^5 &= 2x^2y^3(5x^2 - 8xy + 3y^2) \\ &= 2x^2y^3(5x^2 - 8xy + 3y^2) \\ &= 2x^2y^3(5x - 3y)(x - y) \end{aligned}$$