

Problem Set # 2

1. Compute the GCD of

$$x^2 + 3xy + 2y^2$$

and

$$x^2 + xy + x + y$$

2. Compute the GCD of

$$5xy - 7x - 5y^2 + 7y$$

and

$$2x^2 - xy - y^2$$

3. Solve:

$$s(x^2 + 3xy + 2y^2) + t(x^2 + xy + x + y) = 2(xy^2 + x^2y)$$

a. for $s, t \in \mathbf{Q}(x)[y]$

b. for $s, t \in \mathbf{Q}(y)[x]$