

7.3 NOTES – FACTORING

OBJECTIVES:

- 1) Factor quadratic trinomials.
- 2) Factor a difference of squares.

Factor completely.

1) $3x^2 + 9x - 30$

$$3(x^2 + 3x - 10)$$

$$3(x+5)(x-2)$$

$$x^2 - 2x - 8$$

2) $x^2y^2 - 2xy - 8$

$$(xy-4)(xy+2)$$

3) $4x^2 - 12x + 9$

$$4x^2 - 6x - 6x + 9$$

$$2x(2x-3) - 3(2x-3)$$

$$(2x-3)(2x-3)$$

$$(2x-3)^2$$

$$8x^2 + 6xy + y^2$$

4) $8x^2 + 6xy + y^2$

$$8x^2 + 4xy + 2xy + y^2$$

$$4x(2x+y) + y(2x+y)$$

$$(4x+y)(2x+y)$$

DIFFERENCE OF SQUARES!

RECALL: $(a+b)(a-b) = a^2 - b^2$

5) $4x^2 - 25$

$(2x+5)(2x-5)$

7) $x^2 + 64$

prime!

9) $(x-5)^2 - 36$

$((x-5)+6)((x-5)-6)$

$(x+1)(x-11)$

11) $49 - (y-3)^2$

$(7-(y-3))(7+(y-3))$

$(7-y+3)(7+y-3)$

$(10-y)(4+y)$

6) $x^4 - y^4$

$(x^2+y^2)(x^2-y^2)$

$(x^2+y^2)(x+y)(x-y)$

8) $3x^{15} - 48x^3y^8$

$3x^3(x^{12} - 16y^8)$

$3x^3(x^6 + 4y^4)(x^6 - 4y^4)$

$3x^3(x^6 + 4y^4)(x^3 + 2y^2)(x^3 - 2y^2)$

10) $x^2 + 4x + 4 - y^2$

$(x+2)^2 - y^2$

$(x+2+y)(x+2-y)$

12) $x^2 - y^2 + 16y - 64$

$x^2 - (y^2 - 16y + 64)$

$x^2 - (y-8)^2$

$(x+(y-8))(x-(y-8))$

$(x+y-8)(x-y+8)$