

Math 1215 HW 6

Name:

Solutions

Multiply & Simplify:

1) $7x(4x^2 - 11x + 3) - 4x(8x^2 - 18x + 5)$

$$28x^3 - 77x^2 + 21x - 32x^3 + 72x^2 - 20x = -4x^3 - 5x^2 + x$$

2) $5x(7x^2 - 6x + 4) - 3x(10x^2 - 7x - 1)$

$$35x^3 - 30x^2 + 20x - 30x^3 + 21x^2 + 3x = 5x^3 - 9x^2 + 23x$$

3) $(x - 5)(x + 4)$

$$x^2 + 4x - 5x - 20 = x^2 - x - 20$$

x	-5	
x	x^2	$-5x$
$+4$	$4x$	-20

$$-5x + 4x = -x$$

4) $(4x - 9)(9x + 4)$

$$36x^2 + 16x - 81x - 36 = 36x^2 - 65x - 36$$

5) $(x - 2)^2 = x^2 - 4x + 4$ $(A - B)^2 = A^2 - 2AB + B^2$

6) $(3x + 2)^2 = 9x^2 + 12x + 4$ $(A + B)^2 = A^2 + 2AB + B^2$

7) $(x + 7)(x - 7) = x^2 - 49$ $(A - B)(A + B) = A^2 - B^2$

Factoring using GCF:

$$8) 64x^5y^3 - 40x^4y^4 + 32x^3y^4 - 8x^2y^3$$

$$= \underbrace{8x^2y^3}_{\text{GCF}} (8x^3 - 5x^2y + 4xy - 1)$$

FACTOR TRINOMIALS

$$9) x^2 + 7x + 6 \left\{ \begin{array}{l} \text{sum} = 7 \\ \text{product} = 6 \end{array} \right.$$

$$(x+1)(x+6)$$

$$10) t^2 - 8t + 12 \left\{ \begin{array}{l} \text{sum} = -8 \\ \text{product} = 12 \end{array} \right.$$

$$(t-2)(t-6)$$

$$11) b^2 - 14b + 45$$

Factor using GCF and then factor the trinomial (then check):

$$12) 4b^2 + 20b + 24$$

$$4(b^2 + 5b + 6)$$

$$4(b+3)(b+2)$$

$$13) 9r^2 + 90r - 99$$

$$9(r^2 + 10r - 11)$$

$$9(r+11)(r-1)$$

$$14) 3g^3 + 27g^2 + 60g$$

$$3g(g^2 + 9g + 20)$$

$$3g(g+5)(g+4)$$

Factor a trinomial with a coefficient for x^2 other than 1

$$15) 6x^2 + 5x - 4$$

$$(3x+4)(2x-1)$$

$$16) 7x^2 + 19x - 6$$

$$(7x-2)(x+3)$$

$$17) 36x^2 - 21x + 3$$

$$(12x-3)(3x-1)$$

Factor each special trinomial

$$18) x^2 - 196$$

$$(x-14)(x+14)$$

$$19) x^2 - 1$$

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

$$20) x^2 - 24x + 144$$

$$(x-12)^2$$