

Math 1215 HW 7

Name: SolutionsMultiply & Simplify:

$$\begin{aligned} 1) & \underbrace{(x - 5)(x + 4)}_{=} \\ & = x^2 + 4x - 5x - 20 \\ & = \underbrace{x^2 - x - 20}_{=} \end{aligned}$$

$$\begin{aligned} 2) & \underbrace{(4x - 9)(9x + 4)}_{=} \\ & = 36x^2 + 16x - 81x - 36 \\ & = \boxed{36x^2 - 65x - 36} \end{aligned}$$

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

$$\begin{aligned} 4) & (3x + 2)^2 \\ & = 9x^2 + 12x + 4 \\ & \begin{array}{c|cc} 3x & | & 2 \\ \hline 3x & | & 9x^2 \\ \hline & | & 6x \\ & 2 & | & 4 \end{array} \end{aligned}$$

$$5) (x + 7)(x - 7) = x^2 - 49$$

Factoring using GCF:

$$\begin{aligned} 6) & \downarrow \downarrow \downarrow \quad \downarrow \downarrow \downarrow \quad \downarrow \downarrow \downarrow \quad \downarrow \downarrow \downarrow \\ & 64x^5y^3 - 40x^4y^4 + 32x^3y^4 - 8x^2y^3 \\ & 8x^2y^3(8x^3 - 5x^2y + 4xy - 1) \end{aligned}$$

Factor the trinomials

$$\begin{aligned} 7) & x^2 + 7x + 6 = (x+1)(x+6) \\ & \text{Sum} = 7 \\ & \text{Product} = 6 \\ & 1 \text{ and } 6 \end{aligned}$$

$$\begin{aligned} 8) & b^2 - 14b + 45 = (b-9)(b-5) \\ & \text{Sum} = -14 \\ & \text{Product} = 45 \\ & -9, -5 \end{aligned}$$

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

$$9) 4b^2 + 20b + 24$$

$$\begin{aligned} &= 4(b^2 + 5b + 6) \\ &= 4(b+3)(b+2) \end{aligned}$$

$$10) 9r^2 + 90r - 99$$

$$\begin{aligned} &= 9(r^2 + 10r - 11) \\ &= 9(r+11)(r-1) \end{aligned}$$

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

$$11) 6x^2 + 5x - 4$$

$$\begin{aligned} &(3x+4)(2x-1) \\ &\underline{\text{(guess & check)}} \end{aligned}$$

$$12) 7x^2 + 19x - 6$$

$$\begin{aligned} &(7x-2)(x+3) \\ &\underline{\text{(guess & check)}} \end{aligned}$$

Factor by using difference of squares

$$13) x^2 - 196$$

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

$$14) x^2 - 1$$

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

$$15) 121 - 4b^2$$

$$\begin{aligned} &= 11^2 - (2b)^2 \\ &= (11-2b)(11+2b) \end{aligned}$$