

**Algebra 1 CC**  
**Assignment #65**  
**Factoring Polynomials – Using Difference of Two Squares (DOTS)**  
**Conjugate Pairs**  
**\*Optional**

1. Use the fact that the product of conjugates follows the following pattern,  $(a + b)(a - b) = a^2 - b^2$ , to quickly find the following products in standard form.

(a)  $(x - 5)(x + 5)$

(b)  $(x + 7)(x - 7)$

(c)  $(2 - x)(2 + x)$

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

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

(f)  $(x^3 + 4)(x^3 - 4)$

2. Write each of the following binomials as an equivalent product of conjugates.

(a)  $x^2 - 16$

\* (b)  $x^2 - 100$

(c)  $x^2 - 1$

(d)  $x^2 - 25$

\* (e)  $4 - x^2$

(f)  $9 - x^2$

(g)  $x^2 - 9y^2$

\* (h)  $81 - 4t^2$

(i)  $x^4 - 36$

3. Consider the numerical expression  $51^2 - 49^2$ .

(a) Use your calculator to find the numerical value of this expression.

(b) Can you use facts about conjugate pairs to show why this difference should work out to be the answer from (a)?

R1. Which of the following is *not* a factor of  $4x^2 + 12x$ ?

(1)  $x + 3$

(2)  $x$

(3)  $3x$

(4)  $4$

R2. Which of the following is *not* a correct **factorization** of the binomial  $10x^2 + 40x$ ?

(1)  $10x(x + 4)$

(2)  $10(x^2 + 4x)$

(3)  $5x(2x + 4)$

(4)  $5x(2x + 8)$

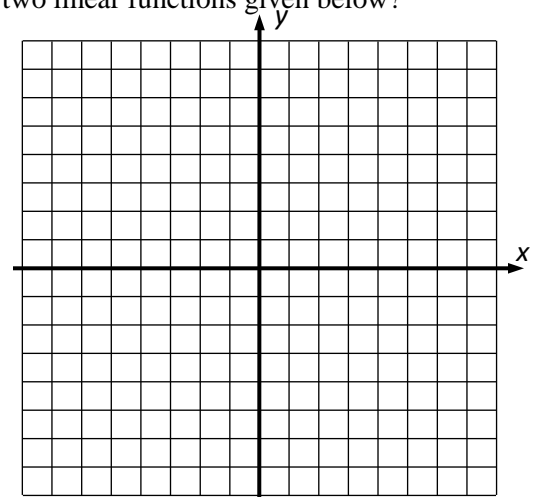
\*R3. Use the distributive property to simplify:  $x(x^2 - 2x - 3)$

\*R4. Use the distributive property to simplify:  $-5t(2t^2 + 3t - 7)$

R5. What are the coordinates of the one point shared in common between the two linear functions given below?

$y = 2x - 2$

$3y + x = 15$



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1. (a)  $x^2 - 25$

(b)  $x^2 - 49$

(c)  $-x^2 + 4$

(d)  $-16x^2 + 25$

(e)  $x^4 - 4$

(f)  $x^6 - 16$

2. (a)  $(x+4)(x-4)$

(b)  $(x+10)(x-10)$

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

(d)  $(x+5)(x-5)$

(e)  $(2+x)(2-x)$

(f)  $(3+x)(3-x)$

(g)  $(x+3y)(x-3y)$

(h)  $(9+2t)(9-2t)$

(i)  $(x^2+6)(x^2-6)$

3. (a) 200

(b)

$$(51+49)(51-49)$$

$$100 \bullet 2$$

R1. (3)

R2. (3)

R3.  $x^3 - 2x^2 - 3x$

R4.  $-10t^3 - 15t^2 + 35t$

R5. (3,4)