

Name \_\_\_\_\_  
Date \_\_\_\_\_

Introduction to Technical Mathematics  
Class #09-B

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***Factoring - Some that are More Difficult***

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Quality - Accuracy - Transfer - 100%

**Section 1. Factoring Trinomials in the form  $ax^2 + bx + c$ , when  $a > 1$**

1. Consider:  $2x^2 + 11x + 5$  Use a Technique Called: \_\_\_\_\_

Test #1: \_\_\_\_\_

Factor:  $x^2 + 11x + 10$   
\_\_\_\_\_

Consider:  $2x^2 + 11x + 5$   
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Factor:  $x^2 - 11x + 18$   
\_\_\_\_\_

Consider:  $3x^2 - 11x + 6$   
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Factor:  $x^2 - 8x - 20$   
\_\_\_\_\_

Consider:  $4x^2 - 8x - 5$   
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Factor:  $x^2 + 12x - 45$   
\_\_\_\_\_

Consider:  $5x^2 - 12x - 9$   
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Factor:  $10x^2 + 13x + 4$

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Factor:  $4x^2 - 25x + 25$

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**\*\*\*IN 2 VARIABLES**

Factor:  $4x^2 + 5xy - 6y^2$

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Factor:  $4x^2 - 9xy - 9y^2$

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**Section 2. F.O.I.L.: Multiplication of the "Sum and Difference" of Two Numbers.**

**1. F.O.I.L. Is there a Pattern?**

a.  $(x + 7)(x - 7)$  

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b.  $(a - 3)(a + 3)$  

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c.  $(2x + 7)(2x - 7)$  

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d.  $(5 + c)(5 - c)$  

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e.  $(8x + 3)(8x - 3)$  

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**2. Describe Each Outcome:** 

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This result is known as: 

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**3. More: Use the Shortcut. Use and be able to recognize the Pattern.**

a.  $(c + d)(c - d)$  \_\_\_\_\_

b.  $(r^3 + s^3)(r^3 - s^3)$  \_\_\_\_\_

c.  $(7 - 20c)(7 + 20c)$  \_\_\_\_\_

d.  $(.5 + .9x)(.5 - .9x)$  \_\_\_\_\_

e.  $(\frac{3}{4}c + \frac{2}{3})(\frac{3}{4}c - \frac{2}{3})$  \_\_\_\_\_

**Section 3. Reverse F.O.I.L.: Factoring's First Steps.**

Step 1: Recognizing and Factoring the Difference of Two Squares. FACTOR the following:

1.  $x^2 - 25$  \_\_\_\_\_

2.  $x^2 - 100$  \_\_\_\_\_

3.  $x^2 - 49$  \_\_\_\_\_

4.  $n^2 - 81$  \_\_\_\_\_

5.  $16 - n^2$  \_\_\_\_\_

6.  $25x^2 - 36$  \_\_\_\_\_

7.  $100x^2 - 9y^2$  \_\_\_\_\_

8.  $\frac{4}{9}y^2 - \frac{1}{16}$  \_\_\_\_\_

9.  $\frac{25}{81}c^2 - \frac{121}{144}d^2$  \_\_\_\_\_

10.  $.25a^2 - .36b^2$  \_\_\_\_\_

**Section 4. An Advanced Technique: Factoring by Substitution.**

1.  $(a + b)^2 - (a - b)^2$

2.  $b(a + c)^2 - b$

**HW Section:**

Section(s)	Page(s)	Problem(s)
8.3	282 → 283	3 → 39 Odd
8.4	287	1 → 29 Odd