

9th Grade Assignment – Week #13

Group Assignment:

- *For Tuesday.*
 - Do the Groupwork problems (#1-10) from **Factoring**, Problem Set #7
- *For Thursday.*
 - Do the Groupwork problems (#1-5) from **Factoring**, Problem Set #8
- *For either day:*
 - *Puzzle!* Stolen Chocolate. Somebody stole Bob's chocolate bar. Jerry, Mary and Larry were suspected. Jerry said, "I didn't do it!" Mary said, "Larry didn't do it!" And Larry said, "Yes, I did!" At least two of them lied. Who stole the chocolate bar?

Individual Work

- Pick and choose which problems you need to work on from Problem Sets #7 and #8.

Problem Set #7

Group Work

You will now practice factoring trinomials that have a number before x^2 .

For example, try factoring $42x^2 + 41x + 9$. It can be helpful to write the pairs of factors of 42 (which are 1,42; 2,21; 3,14; & 6,7) and 9 (1,9; 3,3). The answer turns out to be $(14x + 9)(3x + 1)$.

Factor.

- 1) $7x^2 + 30x + 8$
- 2) $7x^2 - 15x + 8$
- 3) $7x^2 - x - 8$
- 4) $7x^2 + 10x - 8$
- 5) $7x^2 - 55x - 8$
- 6) $15x^2 - 28x + 12$
- 7) $15x^2 - 41x - 12$
- 8) $6x^2 + 17x - 45$
- 9) $12x^2 + 36x + 24$
- 10) $3x^5 - 8x^4 + 4x^3$

Homework

Section A

Multiply.

- 11) $(x + 8)(x - 8)$
- 12) $(x - 8)^2$
- 13) $(x + 15)(x - 15)$
- 14) $(x + 15)^2$

Factor.

(Hint: Each one is possible.)

- 15) $8x^2 + 22x + 15$
- 16) $8x^2 + 34x + 15$
- 17) $8x^2 - 14x - 15$
- 18) $6x^2 - 5x - 4$

Review

Factor.

- 19) $x^2 + 8x + 16$
- 20) $x^2 - 8x + 16$
- 21) $x^2 - 8x + 15$
- 22) $x^2 - 8x - 2$
- 23) $x^2 - 8x + 2$
- 24) $x^6 - 400$
- 25) $x^6 - 40$
- 26) $x^5 - 25$
- 27) $x^4 + 25$
- 28) $x^4 - 81$
- 29) $x^4 - 18$
- 30) $2x^4 - 18$
- 31) $9x^4 - 25y^6$
- 32) $x^7 - 16x^3$

Section B

Factor.

- 33) $x^2 + xy - 90y^2$
- 34) $3x^2 + 33x - 36$
- 35) $x^8 - x^4 - 30$
- 36) $x^8 - 9x^7 + 18x^6$
- 37) $x^2 + 30x + 216$
- 38) $x^2 - 30x - 216$
- 39) $8x^2 - 62x + 15$
- 40) $8x^2 + 29x + 15$
- 41) $8x^2 - 29x + 15$
- 42) $8x^2 + 19x - 15$
- 43) $8x^2 + 37x - 15$
- 44) $8x^2 - 37xy^3 - 15y^6$
- 45) $6x^6 + 10x^3y^2 - 4y^4$

Problem Set #8

Group Work

We will now begin solving *quadratic equations*, which are equations with an x^2 term.

The key to this is realizing that if the product of two terms equals zero, then one of the two terms must be equal to zero. In other words, if $a \cdot b = 0$, then either a or b must be zero. Likewise, if $(x-3)(x+5) = 0$ then x must be either equal to 3 or -5 . (It is important that you understand this last statement!)

Here's how this can be used to solve a quadratic equation:

Example:

Solve $x^2 + 3x = 8x - 6$

$$x^2 + 3x - 8x + 6 = 0$$

$$x^2 - 5x + 6 = 0$$

$$(x - 3)(x - 2) = 0$$

$$x = 2 \text{ or } 3$$

Note that we can check our answer by plugging either 2 or 3 into the original equation and it should work!

Solve.

1) $x^2 - 7x = 6x - 30$

2) $x^2 + 13x = 10x + 28$

3) $4x^2 + 13x = 3x^2 - 30$

4) $4x^2 + 13x = 5x^2 - 30$

5) $x^2 + 24 = 2x(x - 5)$

Homework

Section A

Multiply.

6) $(x + 6)(x - 3)$

7) $(2x + 6)(x - 3)$

8) $4(x + 8)(x - 12)$

9) $(x + 8)4(x - 12)$

10) $(4x + 32)(x - 12)$

11) $(x + 8)(4x - 48)$

12) $(x^2 - 5y)^3$

Factor.

13) $x^8y^4 - 9z^6$

14) $y^4 + 9z^6$

15) $x^2 + 15x + 54$

16) $x^2 + 29x + 54$

17) $x^2 - 15x + 50$

18) $x^2 - 100$

19) $18x^4y^3 + 12x^2y^7$

20) $x^8 - 1$

21) $14x^2 - 29x + 12$

Solve.

22) $x^2 = 10x - 16$

23) $7x + 18 = x^2$

24) $x^2 + 18x + 80 = 0$

25) $x^2 - 15 = 14x$

26) $6x^2 - 90 = 5x^2 - 9x$

27) $x^2 + 3x = 6x + 4$

Section B

Factor.

28) $14x^{10} - 29x^5 + 12$

29) $14x^2 - 29xy + 12y^2$

30) $14x^4 - 29x^2y + 12y^2$

31) $10x^5y^2 + 20x^4y^4 - 350x^3y^6$

32) $14x^2 - 22x - 12$

33) $x^3 - 21x^2 + 20x$

Solve.

34) $x^2 + 3x + 24 = 3x^2 + x$

35) $(x + 5)(x + 3) = -1$