9th Grade Assignment – Week #12

Group Assignment: *For Tuesday and Thursday*.

- Do the Groupwork problems (#1-13) from **Factoring**, Problem Set #5
- Identify which problems you need help with on Problem Sets #5 and #6, and then work together on these problems.
- *Puzzle!*
  It takes Kate 20 minutes to shovel a square measuring 10m by 10m. At that rate, how long will it take her to shovel a parking lot measuring 100m by 100m?
- *Puzzle!*
  George and Emily are siblings. George has twice as many brothers as sisters, and Emily has three times as many brothers as sisters. How many children are in the family?

Individual Work

- Pick and choose which problems you need to work on from Problem Sets #5 and #6.

Problem Set #5

Group Work

In this set of problems, you will practice factoring *the difference of two squares.* For example, when we multiply $(x+4)(x-4)$ the middle terms cancel, so instead of getting a trinomial as an answer, we get the binomial x^2-16.

Going in reverse, we factor x^2-16 to get $(x+4)(x-4)$.

Multiply.

1) $(x + 6)(x - 6)$
2) $(y^3 + 4)(y^3 - 4)$

Factor. (Hint: Some can't be factored.)

3) $x^2 - 36$
4) $y^6 - 16$
5) $x^8 - 9$
6) $x^2 + 25$
7) $x^9 - 25$
8) $x^8 - 8$
9) $x^{16} - 25y^2$
10) $9x^6 - 4y^{10}$
11) $3x^7 - 12x^3$
12) $x^{16} - 16$
13) What makes it possible to factor a binomial into the product of two binomials?

Homework

Section A

Multiply.

14) $(x + 3)(x + 5)$
15) $(x - 3)(x + 5)$
16) $(x - 3)(x - 5)$
17) $(x - 7)(x + 7)$
18) $(x + 7)^2$
19) $2x^5(x + 5)^2$

Factor the binomial.

20) $x^2 - 25$
21) $x^2 + 25$
22) $x^2 - 64$
23) $x^2 + 64$
24) $x^{25} - 25$
25) $x^{10} - 9$
26) $x^{10} - 12$

Mixed Factoring.

27) $x^2 - 10x + 25$
28) $x^6 - 8x^3 + 16$
29) $x^2 + 7x - 18$
30) $x^2 - 1$
31) $x^8 - 49$
32) $12x^2 - 12$
33) $3x^2 + 21x - 54$
34) $x^2 + 9x - 20$
35) $x^2 + x - 72$
36) $x^2y^2 + xy - 72$

Section B

Factor completely.

37) $x^{12} - 16$
38) $5x^5 - 20x^3$
39) $x^6 - 9y^4$
40) $6x^3y^6 + 14x^5z^3$
41) $2x^3 - 26x^2 + 24x$
42) $2x^5 + 38x^4 + 96x^3$

— Factoring —

Problem Set #6

Review!

Section A

Multiply.

1) $(x + 9)(x - 9)$
2) $(x - 9)^2$
3) $(x^2 - 6)(x^2 + 6)$
4) $(x^2 - 6)^2$
5) $(x - 15)(x + 15)$
6) $(x - 18)(x + 2)$
7) $(x + 30)(x - 30)$
8) $(4x^2)(5xy^3)(5xy^3)$

Factor.

9) $x^2 - 900$
10) $x^3 - 9x$
11) $x^6 - y^4$
12) $x^2 + 25x + 84$
13) $x^2 - 25x - 84$
14) $x^2 + 25x - 84$
15) $x^2 - 25x + 84$

Simplify.

16) $\sqrt{49x^{16}}$
17) $\left(\frac{2}{7}\right)^{-2}$
18) $\left(3x^{-2}\right)^{-4}$
19) $\frac{3x^{-2}}{9x^{-6}}$

Evaluate

20) given $x = 5$ and $y = -\frac{1}{8}$

Evaluate $x^2 - 64y + y^2 + \frac{1}{x}$

Solve for x in terms of y.

21) $y = 4x + 9$

Solve.

22) $5(x + 2) - 4(7 - x) = 6$
23) $\frac{2}{x+4} = \frac{3}{x-1}$
24) $(x + 1)(x - 2) = (x + 3)^2$

Section B

Simplify.

25) $(x - 3)(x - 4)^2$
26) $(x - 6)^3$
27) $(x^2 + 9)(x + 3)(x - 3)$
28) $(4x^2)(5x - y^3)(5x + y^3)$
29) $\left(\frac{3y^{-3}}{2x^3}\right)^{-2}$
30) $\frac{5x^{-4}y^{-3}}{15x^{-3}y^5}$

Evaluate

given $x = -½$ and $y = ¾$

31) $\frac{y}{3x} - x^3 + 6y$

Factor.

32) $x^6 - x^4$
33) $2x^9 - 18x^3y^4$
34) $x^2 + 25x - 70$
35) $5x^2 + 25x - 70$
36) $x^6 - 18x^3 + 81$
37) $x^6 - 81$
38) $x^{12} - 81$
39) $x^4 - 3x^3 - 28x^2$

Solve for x in terms of y.

40) $y = ⅔x - 2$

Solve.

41) $-\frac{3}{5}X - 1 = \frac{5}{6} - 2X$
42) $\frac{-½}{3X+1¼} = \frac{4}{¾X-½}$