

# Factoring – Around the Room Practice

3103.3.21 Factor polynomials using a variety of methods including the factor theorem, synthetic division, long division, sums and differences of cubes, and grouping.

This activity will take students around the entire room working the problems at particular “stations.” This activity works well for review or just for a change of pace to complete assignments.

To prepare for the activity, print a group answer sheet for each group and print the included problem sheets on cardstock or copy paper. It is helpful to laminate each sheet or put each sheet in a sheet protector to discourage students from writing on the problem sheet (and to make it easy to store for next time). An answer key for this activity is included at the end of the problem sheets.

My room is arranged so that there are seven groups with 4-5 desks in each group, but this activity can certainly work with any number of groups. Before we begin the activity, I tell the students that they should write down all problems just in case they do not finish all problems at a particular station. At the beginning of the activity, I give a problem sheet to each of the seven groups and set the timer for a predetermined amount of time. I also give each group an answer sheet on which to record their answers. Students work together to complete the problems on their sheet until time is up for the first station. After the timer goes off, students rotate to the next station and begin working on the problems on that problem sheet. This is completed until students return to their original station, at which time I give a few minutes to complete any unfinished problems.

Students usually enjoy this activity as long as it is not too rushed. I try to allow enough time for groups to finish the problems if they are working hard. Students certainly stay on task during this activity because they know they are on a time limit that will not allow them to goof off and still finish the problems.

Sometimes when we are doing this activity, I give each group a sheet of cardstock on which they make up the problems to be used during the “around the room” review/practice. When I do this, I specify the type of problem(s) that each group should include on their card.

This activity can definitely be used for a variety of concepts. When preparing for this activity, be sure to arrange problems on problem sheets so that each card should take approximately the same amount of time.

If there are students in a class who are unable to easily move around the room or if the room is not conducive to groups moving from station to station, it works well to pass the problem sheets from group to group rather than having the students move around.

# Answer Sheet for Factoring Around the Room

1.	13.	25.
2.	14.	26.
3.	15.	27.
4.	16.	28.
5.	17.	29.
6.	18.	30.
7.	19.	31.
8.	20.	32.
9.	21.	33.
10.	22.	34.
11.	23.	35.
12.	24.	

# Factoring Around the Room Problem Sheet 1

1.  $125x^3 + 8$

2.  $81x^4 - 72x^2 + 16$

3.  $4x^2 + 16$

4.  $40x^2 + 18x - 7$

5.  $8x^2 - 10x + 3$

# Factoring Around the Room Problem Sheet 2

6.  $11x(x - 8) - 3(x - 8)$

7.  $36x^2 - 89x + 18$

8.  $x^2 - 4xy - 77y^2$

9.  $x^3 + 5x^2 - 2x - 10$

10.  $x^2 - 169$

# Factoring Around the Room

## Problem Sheet 3

11.  $36x^2 - 25y^2$

12.  $12x^2 - 8x - 15$

13.  $16x^4 - y^4$

14.  $27x^3 - 343$

15.  $3x^2 + 14x + 8$

# Factoring Around the Room

## Problem Sheet 4

16.  $16x^2 - 36y^2$

17.  $x^2 - 5x - 24$

18.  $36x^2 - 45$

19.  $2x^2 + 14x + 3xy + 21y + 4xz + 28z$

20.  $81x^2 + 100$

# Factoring Around the Room Problem Sheet 5

21.  $24x^5y^3 + 88x^3y^2 - 40x^2y$

22.  $x^3 + 216y^3$

23.  $x^2 + 14x + 48$

24.  $32x^2 + 28x - 15$

25.  $7wy^2 + 2xy^2 - 7wz^2 - 2xz^2$

# Factoring Around the Room

## Problem Sheet 6

26.  $14x^2 - 18x - 20$

27.  $49x^2 + 16$

28.  $2x^2 + 5x + 2xy + 5y + 2xz + 5z$

29.  $5x^2 + 13x - 6$

30.  $x^4 - 26x + 25$

# Factoring Around the Room Problem Sheet 7

31.  $x^2 - 13xy + 36y^2$

32.  $3x(x + 4) + 7y(x + 4)$

33.  $64x^3 - 1$

34.  $24x^2 - xy - 10y^2$

35.  $225x^2 - 196y^2$

# Answer Key for Factoring Around the Room

1. $(5x + 2)(25x^2 - 10x + 4)$	13. $(4x^2 + y^2)(2x + y)(2x - y)$	25. $(7w + 2x)(y + z)(y - z)$
2. $(3x - 2)^2(3x + 2)^2$	14. $(3x - 7)(9x^2 + 21x + 49)$	26. $2(x - 2)(7x + 5)$
3. $4(x^2 + 4)$	15. $(x + 4)(3x + 2)$	27. prime
4. $(4x - 1)(10x + 7)$	16. $4(2x + 3y)(2x - 3y)$	28. $(2x + 5)(x + y + z)$
5. $(2x - 1)(4x - 3)$	17. $(x + 3)(x - 8)$	29. $(x + 3)(5x - 2)$
6. $(x - 8)(11x - 3)$	18. $9(4x^2 - 5)$	30. $(x + 1)(x - 1)(x + 5)(x - 5)$
7. $(4x - 9)(9x - 2)$	19. $(x + 7)(2x + 3y + 4z)$	31. $(x - 9y)(x - 4y)$
8. $(x + 7y)(x - 11y)$	20. prime	32. $(x + 4)(3x + 7y)$
9. $(x + 5)(x^2 - 2)$	21. $8x^2y(3x^3y^2 + 11xy - 5)$	33. $(4x - 1)(16x^2 + 4x + 1)$
10. $(x + 13)(x - 13)$	22. $(x + 6y)(x^2 - 6xy + 36y^2)$	34. $(3x - 2y)(8x + 5y)$
11. $(6x + 5y)(6x - 5y)$	23. $(x + 6)(x + 8)$	35. $(15x + 14y)(15x - 14y)$
12. $(2x - 3)(6x + 5)$	24. $(4x + 5)(8x - 3)$	