# OEHS Honors Geometry
# Algebra Review Packet

Welcome to Honors Geometry. In order to prepare for this course, there are 9 skills in this packet that you need to practice and complete by the first day of school. I will collect the packet on the first day of class.

**Expectations:**
These skills that are represented in this packet are crucial to your success in the class. You will be called upon to know and apply these skills throughout the semester. **As you complete this packet you must show all work. If necessary you may use another sheet of paper that you will attach with the packet. Also, final answers should be recorded on the answer sheet located on the last page of this packet.**

You will have to do these problems unless otherwise noted. Also, expect to be quizzed over the material within the first week of class.

Contents:



## ***Please record all final answers on the answer sheet provided.***

## *1. Solving Linear Equations*

Solve these linear equations and check your answers. Rewrite the problem and show your work for the solution.

1. $2(4x - 3) + 4 = 5x - 6$

2. $x - 3(x - 7) = 4(x - 7) - 2x$

3. $3(4 - 2(5x - 3) - 2x) = 8(x + 1)$

4. $\frac{2}{3}x - 8 = 25$

## *2. Solving Systems of Equations by Linear Combination Method*

(Also called Elimination Method)

Solve each system for x and y by linear combination (elimination). Show your work for the solution.

5. $\begin{cases} -3x + 3y = 4 \\ -x + y = 3 \end{cases}$

6. $\begin{cases} 8x - 6y = 16 \\ 12x - 9y = 24 \end{cases}$

7. $\begin{cases} -3x - 10y = 9 \\ 14x + 18y = -22 \end{cases}$

## *3. Solving Systems of Equations by Substitution*

Solve each system for x and y using substitution. Show your work for the solution.

8. $\begin{cases} 2x + y = 21 \\ 7x - 2y = 90 \end{cases}$

9. $\begin{cases} 2x + 7y = -20 \\ x - 5y = -10 \end{cases}$

10. $\begin{cases} 2x - 4y = 40 \\ 8x - 3y = 82 \end{cases}$

## *4. Simplifying Radicals*

Simplify each radical. Show your work for the solution.

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11. $\sqrt{243}$

12. $\sqrt{675}$

13. $\sqrt{7} \bullet \sqrt{12}$

14. $\sqrt{52}$

15. $\sqrt{288}$

16. $\sqrt{8} - \sqrt{32}$

17. $\sqrt{320}$

18. $\sqrt{80}$

19. $6\sqrt{6} + 5\sqrt{6}$

20. $\sqrt{3} - 5\sqrt{3}$

## *5. Solving Quadratic Equations by the Quadratic Formula*

Solve each quadratic equation by the quadratic formula. Leave in simplified radical form. Show your work for the solution.

21. $4x^2 + 8x + 2 = 0$

22. $-8x + 3x^2 = -1$

23. $x^2 + 3x = 12x - 1$

24. $x^2 + x - 7 = 0$

## *6. Solving Quadratic Equations by Factoring (when a=1)*

**Solve** each quadratic equation by factoring. Show your work for the solution.

25. $x^2 + 4x + 3 = 0$

26. $x^2 = 2x + 48$

27. $x^2 + 5x = 5(x + 5)$

28. $x^2 - 8x + 12 = 0$

29. $x(x + 8) = 4(11 - 3x)$

30. $32x + 240 = -x^2$

## *7. Solving Quadratic Equations by Factoring (when a≠1)*

Solve each quadratic equation by factoring. Show your work for the solution.

31. $3x^2 - 10x + 8 = 0$

32. $-9x^2 + 15x = 4$

32. $12x^2 + 39x + 27 = 0$

34. $5x^2 = 2x + 3$

35. $6x^2 = 2(13x + 10)$

36. $7x + 21 = 14x^2$

## *8. Solving Special Cases of Quadratic Equations*

Solve each special quadratic equation. Show your work for the solution.

37. $x^2 + 5 = 30$

38. $5x^2 + 12 = 22$

39. $2x^2 = 32x$

40. $2x^2 + 5 = 103$

41. $x^2 + 5x = 0$

42. $4x(x - 5) = -2(x^2 + 3x)$

## *9. Solving Proportions*

Solve each equation. Show your work for the solution.

43. $\frac{18}{x-2} = \frac{4}{3}$

44. $\frac{x+1}{3} = \frac{x+5}{x}$

45. $\frac{x}{2} = \frac{3x+8}{x}$

***Congratulations, You Are Finished! Please make sure you record all answers on the following sheet.***

**ANSWER SHEET**: Please write all answers to the summer packet problems in the boxes.

| | | |
|---|---|---|
| 1. | 2. | 3. |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | 11. | 12. |
| 13. | 14. | 15. |
| 16. | 17. | 18. |
| 19. | 20. | 21. |
| 22. | 23. | 24. |
| 25. | 26. | 27. |
| 28. | 29. | 30. |
| 31. | 32. | 33. |
| 34. | 35. | 36. |
| 37. | 38. | 39. |
| 40. | 41. | 42. |
| 43. | 44. | 45. |