9.5 Notes
Solving Equations with Fractions

- Equations are like a scale→ what you do to one side you have to do to the other.
- You want to get the variable alone on one side→ to do that you always do the opposite

EXAMPLE 1

3x - 1 = 0
- We need to get the x alone. So we add the 1 over

3x = 1
- We still need to get the x alone. Since 3 is multiplying x we must divide both sides by 3.

X = ⅓
- This is our final answer.

EXAMPLE 2
-2x - 4 = 2
- we have to get the variable alone

-2x = 6
- We must divide by -2 to get x alone. The variable CANNOT have a negative sign in front of it.

X = -3
- This is our final answer. It is negative because we divided by a negative number and that changes the sign.

EXAMPLE 3

16 - 3x = 11
- Get rid of the 16. Since there is no sign we assume its positive. So subtract 16 from both sides.

-3x = -5
- Divide by -3

X = 5/3 or 1 ⅔

HOMEWORK- Book page 235 questions 2-37

9.6 Notes
Combining Like Terms

- Like terms- this means numbers that have the SAME variables
  - Remember numbers that dont have variables (ex. 9 and 4) are also like terms

- Remember we are not solving the equations, dont get the variable alone. Just combine terms.

EXAMPLE 1

8x + 4x = 12x
- Its just like simple addition. 8+4=12. Just dont forget to bring the variable.

EXAMPLE 2
-4x + 7x = ?

- Remember our addition. We have one negative and one positive so we subtract.
- 7 is bigger than 4 so the number will have 7's sign which was a positive
- 7-4 3

-4x + 7x = 3x.
- This is your final answer

EXAMPLE 3

-2x + 3 + 5 = ?
- Remember we are looking for like terms. There are no other numbers with an X variable so we just carry it over and leave it alone.
- The only like terms we have are the 3 and 5. We do what the signs say. Just add them together.

-2x + 3 + 5 = -2x + 8
- This is the final answer

HOMEWORK- book page 237, questions 2-36.

9.7 Notes
Solving Equations with like terms

- This is a combination of the last two lessons. We need to combine any like terms and then solve for the variable
- The first step is to combine terms
- After you combine terms then you can solve for the variable

EXAMPLE 1
7x + 2x = 27
- Combine like terms

9x = 27
- Now solve for x by dividing 9 on both sides.

X = 27/9→ 3

EXAMPLE 2
3x - 9x = 12
- Combine like terms. One positive and negative means subtract. 3-9 = -6

-6x = 12
- Get variable alone and solve for x

x= -2
- Remember when you divide by a negative it changes the sign.

EXAMPLE 3
5x + 4x + 3 = -4
- Combine like terms. 5x and 4x can combine to make 9x. 3 has no like terms on its side so leave it alone

9x + 3 = -4
- Now solve for x. Subtract 3 from both sides.

9x = -7
- Divide 9 by both sides and you have your answer

X = -7/9
- Final answer

HOMEWORK- book page 239 questions 4-45

9.8 notes
Equations with variables on both sides

- When you have equations with variables on both sides. You just need to get them on the same side by doing the opposite, like you would with a normal number in an equation.
- Once they are combined, you can solve for the variable.

EXAMPLE 1
5x= 4x -7
- Get x's on same side. Preferably on the side opposite the 7. So subtract 4x on both sides.

x = -7
- There is an invisible 1 infront of the x but that is our final answer!

EXAMPLE 2
8x = -2x + 10
- Get x's on same side. So add 2x to both sides

10x = 10
- Solve for x by dividing 10 by both sides

x= 1
- Final answer

EXAMPLE 3
7x + 5 = 4x + 3
- We have combine variables. Get x's on one side of the equal sign and the normal numbers on the other. To start subtract 4x from both sides.

3x + 5 = 3
- Now we need the 5 on the other side of the equal sign. So subtract 5 from both sides

3x = -2
- Divide both sides by 3 to get the answer

X = -⅔

EXAMPLE 4
6x-5= 9x-2
- Get x's alone.

-5 = 3x -2
- Combine other numbers on opposite side of equals

-3 = 3x
- Divide both sides by 3 to get the answer

-1 = x
- final answer

HOMEWORK- book page 241 questions 4-30

The last three assignments are worksheets.

1. **Pg 235-41 practice quiz**
2. **Pg 235-41 quiz**

3. **CH. 9 practice test.**

Overall work is 4 book assignments and 3 worksheets.

Name _____ **Practice, Pre-Algebra, p. 235-241**

Combine like terms. (6)

1. $3x + 7x$ _____

2. $3x - 8x$ _____

3. $6x + 2 - 8$ _____

4. $2x + 7y - 4x - 9y$ _____

5. $5x + 9x - 10x + 3$ _____

6. $-2x - 3y - 4x - 5y$ _____

Solve each equation. (19)

7. $3x + 2 = 9$ _____

8. $-2x - 9 = -7$ _____

9. $5x + 9 = 15$ _____

10. $4x - 12 = -5$ _____

11. $3x + 9 = -7$ _____

12. $-10x + 9 = 5$ _____

13. -4x - 9 = -5 _____

14. 2x + 3x = 30 _____

15. 4x - 7x = -15 _____

16. 2x + 7x = -18 _____

17. -2x - 4x = 15 _____

18. 5x + 10 - 4 = 5 _____

19. -3x - 5x - 8 - 1 = -6 _____

20. 3x = 2x + 8 _____

21. 2x + 5 = 9x _____

22. $4x + 8 = 6x - 9$ _____

23. $-2x - 8 = -5x - 14$ _____

24. $2x + 8 = 1 + 6x$ _____

25. $2x + 3 = -4x - 7$ _____

Name _____ **Quiz, Pre-Algebra, p. 235-241**

Combine like terms. (6)

1. 3x + 2x _____

2. 9x - 8x _____

3. 5x + 4 - 8 _____

4. 2x + 3y - 5x - 8y _____

5. 5x + 8x - 10x + 9 _____

6. -3x - 4y - 7x - 7y _____

Solve each equation. (19)

7. 3x + 5 = 9 _____

8. -2x - 9 = -9 _____

9. 5x + 9 = 13 _____

10. 4x - 12 = -9 _____

11. 3x + 9 = -3 _____

12. -10x + 9 = 1 _____

13. $-4x - 9 = -3$ _____

14. $2x + 3x = 25$ _____

15. $4x - 7x = -18$ _____

16. $2x + 7x = -28$ _____

17. $-2x - 4x = 10$ _____

18. $3x + 10 - 8 = 2$ _____

19. $-3x - 4x - 8 - 9 = -6$ _____

20. $3x = 2x + 8$ _____

21. $3x + 8 = 9x$ _____

22. $4x + 8 = 2x - 8$ _____

23. $-2x - 8 = -4x - 18$ _____

24. $2x + 8 = 9 + 3x$ _____

25. $2x + 3 = 4x - 6$ _____

Name _____ **Practice Test, Pre-Algebra, Chapter 9**

1. What are rational numbers?

_____

Write each rational number in simplest fractional form.

2. $\frac{-8}{2}$ _____

3. $\frac{-15}{6}$ _____

4. $\frac{-16}{24}$ _____

<, >, or =?

5. $-8 \_ \_ \_ -6$ _____

6. $\frac{7}{8} \_ \_ \_ \frac{5}{6}$ _____

7. $-\frac{1}{4}---\frac{1}{3}$ _____

Write in decimal form.

8. $\frac{-1}{4}$ _____

9. $\frac{11}{3}$ _____

10. $\frac{-3}{8}$ _____

Write in simplest fractional form.

11. $.7$ _____

12. $-.25$ _____

13. -1.3 _____

Give each sum or difference in simplest form.

14. $\frac{-2}{7} + \frac{-3}{7}$ _____

15. $\frac{-1}{2} + \frac{1}{8}$ _____

16. $\frac{1}{2} + \frac{-1}{4}$ _____

17. $\frac{1}{2} - \frac{-1}{3}$ _____

18. $\frac{-3}{10} - \frac{1}{5}$ _____

19. $\frac{1}{3} - \frac{1}{2}$ _____

Give each product or quotient in simplest form.

20. $\frac{-5}{7} \cdot \frac{14}{15}$ _____

21. $\frac{-3}{4} \cdot \frac{-1}{2}$ _____

22. $6\frac{1}{4} \cdot -2\frac{6}{5}$ _____

23. $9876\frac{1234}{5678} \div 9876\frac{1234}{5678}$ _____

24. $\frac{-1}{2} \div -2$ _____

25. $-6\frac{1}{4} \div 3\frac{1}{8}$ _____

Combine like terms. (6)

26. 3x + 4x _____

27. 12x - x _____

28. 2x + 6 - 8 _____

29. 5x + 4y - 3x - 7y _____

30. 4x + 8x - 10x + 9 _____

31. -6x - 2y - 4x - 7y _____

Solve each equation. (19)

32. 3x + 6 = 9 _____

33. 2x - 9 = 9 _____

34. 5x + 9 = -13 _____

35. -4x + 12 = -2 _____

36. 3x + 7 = -3 _____

37. $-10x + 11 = 1$ _____

38. $-4x - 7 = -3$ _____

39. $2x + 3x = 30$ _____

40. $4x - 7x = -12$ _____

41. $2x + 6x = -28$ _____

42. -2x - 3x = 12 _____

43. 3x + 10 - 4 = 2 _____

44. 7x - 4x + 8 - 9 = -6 _____

45. 5x = 4x + 8 _____

46. 3x + 12 = 9x _____

47. $4x + 4 = 2x - 8$ _____

48. $-2x + 8 = -6x + 18$ _____

49. $4x + 8 = 9 + 3x$ _____

50. $2x - 3 = -4x - 6$ _____