EXAM 2X*   PRE ALGEBRA   Dr. Rapalje

SHOW ALL WORK on this test or on separate!   Circle final answers. CALCULATORS—YES!!

In 1 - 8, combine like terms and simplify completely.

1. $x - 3y + 11y + 9x$

2. $5x - 12x + 4x$

3. $15x + 4y - (-5x)$

4. $x - 8x - 5x$

5. $-6x + 3(x - 5) + 7y$

6. $-3(5x - 7) - 5x$

7. $14x - (-11x) + 2(3x+7)$

8. $27x - (5x + 3) - 13$

In 9 – 20, solve for x:

9. $x - 7 = 12$

10. $x - 7 = -12$

11. $3x = -24$

12. $7x + 14 = 49$

13. $-5x + 3x = 17 + 7$

14. $-2x - 7 - 3x = 6 + (-3)$

15. $4x - 5 = 3x - 17$

16. $4x - 5 = 6x + 17$

17. $3(x - 1) = 6$

18. $7(7x - 2) - 6(8x - 3) = 6$

19. $2(5x + 4) = 3(2x - 4)$

20. $2(5 - x) = 4(x - 4) - 10$

In 21 – 23, write an equation and solve.

21. Seven more than twice an unknown number is equal to 25. Find the number.

22. Two numbers are such that the larger number is four less than three times the smaller. The sum of the number is 48. Find the numbers.

23. Three numbers are such that the second number is twice times the first number, and the third number is 3 less than the second number. The sum of the numbers is 37. Find the numbers.

24. Express $6\dfrac{3}{7}$ as an improper fraction.   25. Express $\dfrac{25}{3}$ as a mixed number.

In 26 – 28, reduce the fractions to lowest terms.

26. $\dfrac{30}{45}$ 27. $\dfrac{25}{60}$ 28. $\dfrac{45}{225}$

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In 29 – 34, perform the indicated operations and reduce fractions to lowest terms.

29. $\dfrac{2x}{7} + \dfrac{3x}{7}$

30. $\dfrac{7x}{2} - \dfrac{3x}{2}$

31. $\left(\dfrac{14}{9}\right)\left(\dfrac{3}{7}\right)$

32. $-\dfrac{7}{5} \div \dfrac{14}{25}$

33. $\dfrac{7}{3} \cdot \dfrac{y}{21}$

34. $\dfrac{4}{5} - \dfrac{3}{10}$

In 35 – 36, simplify the complex fractions.

35. $\dfrac{\dfrac{3}{4}}{\dfrac{7}{5}}$

36. $\dfrac{\dfrac{5}{8}}{\dfrac{3x}{4}}$

In 37 – 42, solve the equations.

37. $\dfrac{x}{4} = 8$

38. $\dfrac{3}{4}x = 12$

39. $\dfrac{x}{3} - \dfrac{x}{4} = \dfrac{1}{12}$

40. $\dfrac{1}{3}x + 6 = 2$

41. $\dfrac{x}{6} - \dfrac{3}{2} = 8$

42. $\dfrac{2}{3}x - \dfrac{1}{3} = 3$

MAT 0012   EXAM 2X   Solutions   Dr. Rapalje, SCC

1. $x - 3y + 11y + 9x$
$x + 9x - 3y + 11y$
$\boxed{10x + 8y}$

2. $5x - 12x + 4x$
$-7x + 4x$
$\boxed{-3x}$

3. $15x + 4y - (-5x)$
$15x + 5x + 4y$
$\boxed{20x + 4y}$

4. $x - 8x - 5x$
$-7x - 5x$
$\boxed{-12x}$

5. $-6x + 3(x-5) + 7y$
$-6x + 3x - 15 + 7y$
$\boxed{-3x - 15 + 7y}$

6. $-3(5x-7) - 5x$
$-15x + 21 - 5x$
$\boxed{-20x + 21}$

7. $14x - (-11x) + 2(3x+7)$
$14x + 11x + 6x + 14$
$\boxed{31x + 14}$

8. $27x - (5x+3) - 13$
$27x - 5x - 3 - 13$
$\boxed{22x - 16}$

9. $x - 7 = 12$
$+7 \ +7$
$\boxed{x = 19}$

10. $x - 7 = -12$
$+7 \ +7$
$\boxed{x = -5}$

11. $\dfrac{3x}{3} = \dfrac{-24}{3}$
$\boxed{x = -8}$

12. $7x + 14 = 49$
$-14 \ -14$
$7x = 35$
$\boxed{x = 5}$

13. $-5x + 3x = 17 + 7$
$\dfrac{-2x}{-2} = \dfrac{24}{-2}$
$\boxed{x = -12}$

14. $-2x + 7 - 3x = 6 + (-3)$
$-5x - 7 = 3$
$+7 \ +7$
$-5x = 10$
$\boxed{x = -2}$

15. $4x - 5 = 3x - 17$
$+5 \qquad +5$
$4x = 3x - 12$
$-3x \quad -3x$
$\boxed{x = -12}$

16. $4x - 5 = 6x + 17$
$-6x \quad -6x$
$-2x - 5 = 17$
$+5 \ +5$
$-2x = 22$
$\boxed{x = -11}$

17. $3(x-1) = 6$
$3x - 3 = 6$
$+3 \ +3$
$3x = 9$
$\boxed{x = 3}$

18. $7(7x-2) - 6(8x-3) = 6$
$49x - 14 - 48x + 18 = 6$
$x + 4 = 6$
$\boxed{x = 2}$

19. $2(5x+4) = 3(2x-4)$
$10x + 8 = 6x - 12$
$-6x \qquad -6x$
$\dfrac{4x + 8}{} = \dfrac{-12}{}$
$-8 \quad -8$
$4x = -20$
$\boxed{x = -5}$

20. $2(5-x) = 4(x-4) - 10$
$10 - 2x = 4x - 16 - 10$
$10 - 2x = 4x - 26$
$-4x \quad -4x$
$10 - 6x = -26$
$-10 \qquad -10$
$-6x = -36$
$\boxed{x = 6}$

21. Let $x =$ the no.
$2x + 7 = 25$
$2x = 18$
$\boxed{x = 9}$

22. Let $x =$ smaller no. $\boxed{13}$
$3x - 4 =$ larger no. $\boxed{35}$ ch: 48
$x + 3x - 4 = 48$
$4x - 4 = 48$
$+4 \ +4$
$\dfrac{4x}{4} = \dfrac{52}{4}$
$\boxed{x = 13}$
$3x - 4 = 3(13) - 4$
$= 39 - 4 = \boxed{35}$

23. Let $x = $ 1st no. $\boxed{8}$ ch: 8
$2x = $ 2nd no. $\boxed{16}$ $+16$
$2x - 3 = $ 3rd no. $\boxed{13}$ $\underline{+13}$
$x + 2x + 2x - 3 = 37$ 37
$5x = 40$
$x = 8$

24. $6\dfrac{3}{7} = \boxed{\dfrac{45}{7}}$

25. $\dfrac{25}{3} = \boxed{8\dfrac{1}{3}}$

26. $\dfrac{30}{45} = \boxed{\dfrac{2}{3}}$

27. $\dfrac{25}{60} = \boxed{\dfrac{5}{12}}$

28. $\dfrac{45}{225} = \dfrac{9}{45} = \boxed{\dfrac{1}{5}}$

29. $\dfrac{2x}{7} + \dfrac{3x}{7} = \boxed{\dfrac{5x}{7}}$

30. $\dfrac{7x}{2} - \dfrac{3x}{2} = \dfrac{4x}{2} = \boxed{2x}$

31. $\left(\dfrac{\cancel{14}}{\cancel{4}}\right)\left(\dfrac{\cancel{8}}{\cancel{8}}\right) = \boxed{\dfrac{2}{3}}$

32. $-\dfrac{7}{5} \div \dfrac{14}{25}$
$-\dfrac{\cancel{7}}{\cancel{5}} \cdot \dfrac{25^5}{14_2} = \boxed{-\dfrac{5}{2}}$

33. $\dfrac{\cancel{1}}{3} \cdot \dfrac{4}{\cancel{21}_3} = \boxed{\dfrac{4}{9}}$

34. $\dfrac{4}{5} - \dfrac{3}{10}$
$\dfrac{4 \cdot 2}{5 \cdot 2} - \dfrac{3}{10}$
$\dfrac{8 - 3}{10} = \boxed{\dfrac{5}{10} \ \dfrac{1}{2}}$

35. $\dfrac{\frac{3}{4}}{\frac{7}{5}} = \dfrac{3}{4} \div \dfrac{7}{5}$
$= \dfrac{3}{4} \cdot \dfrac{5}{7} = \boxed{\dfrac{15}{28}}$

36. $\dfrac{\frac{5}{8}}{\frac{3x}{4}} = \dfrac{5}{8} \div \dfrac{3x}{4}$
$= \dfrac{5}{8} \cdot \dfrac{\cancel{4}}{3x} = \boxed{\dfrac{5}{6x}}$

37. $\dfrac{4x}{9} = 8 \cdot 4$
$\boxed{x = 32}$

38. $\dfrac{3}{8}x = 12$
$3x = 48$
$\boxed{x = 16}$

39. $\dfrac{\cancel{4}}{3} \cdot \dfrac{x}{\cancel{8}} - \dfrac{\cancel{12}^3}{8} \cdot \dfrac{x}{\cancel{4}} = \dfrac{\cancel{16}}{\cancel{12}}$
$4x - 3x = 1$
$\boxed{x = 1}$

40. $\dfrac{1}{3}x + 6 = 2$
$3 \cdot \dfrac{1}{3}x = -4$
$\boxed{x = -12}$

41. $\cancel{8} \cdot \dfrac{x}{\cancel{8}} - \cancel{8} \cdot \dfrac{9}{\cancel{8}} = 6 \cdot 8$
$x - 9 = 48$
$\boxed{x = 57}$

42. $\cancel{2} \cdot \dfrac{1}{\cancel{2}}x - \cancel{2} \cdot \dfrac{1}{\cancel{2}} = 3 \cdot 2$
$2x - 1 = 9$
$2x = 10 \ \boxed{x = 5}$