Math 101 -- Practice Problems

Carry out the operations indicated and simplify if possible.

1. $2+3(5-1)$

2. $8\cdot(-4)+3\cdot(4-6)$

3. $2(3-1)-3(2-5)$

4. $(-2)(-3)-(-4)(-5)$

5. $\dfrac{-2}{3}-\left(\dfrac{3}{-4}\right)$

6. $\dfrac{1}{7}+\dfrac{1}{14}+\dfrac{1}{21}$

7. $\dfrac{3}{25}+\dfrac{2}{35}$

8. $\dfrac{3-5}{2-5}\cdot\dfrac{5-3}{2-3}$

9. $\dfrac{4}{9}\div\dfrac{9}{4}$

In problems 9 - 12, solve the given equation for x.

10. $3(x-1)+2(x+1)=9$

11. $4(2x-1)-3(x+1)=8$

12. $\dfrac{x+2}{5}=\dfrac{x+1}{3}$

13. 1.301 - .211 + .0004 = ?

14. 9.603 ÷ .003 = ?

15. 13 is what % of 52?

16. What is 1% of .01?

17. A certain city charges 7% meal tax in its restaruants. In that city, what is the meal tax on a dinner priced at $40?

18. A rectangle has perimeter 18 in. If the rectangle is 3 in. wider than it is high, what is its area?

19. What is the slope of the line throught the points (2, 3) and (1, -1) ?

20. What is the equation of the line with slope 3 which goes through the point (-2, 1) ?

21. Sketch the line whose equation is: $y = 1 - x$.

22. Solve the equations:

$$x + y = 4$$

$$2x + 3y = 6$$

23. Solve the equations:

$$2x + 3y = 1$$

$$3x - 2y = -5$$

24. Part of $9000 is invested at 6% per year, and the rest is invested at 7% per year. If the total interest after the first year is $610, how much was invested at each rate?

25. Todd and Terri are 3 years apart in age. 15 years ago, Terri was 4 times as old as Todd was. How old are they both now?

26. I'm thinking of two numbers. Their sum is 19 and their difference is 3. Find the two numbers.

In problems 27 - 32, carry out the operations indicted and simplify if possible.

27, $x^3y \cdot \left(2x^2y^2 + 5x^2y^2\right)$

28. $\dfrac{x^3y^2z^3}{(xyz)^2}$

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

30. $\dfrac{4x^3y^4 + 2x^2y^5 - 6x^3y^3}{2x^2y^2}$

31. $\dfrac{x^3 + 3x^2 + 5x + 6}{x + 2}$

32. $\dfrac{x^3 - x + 2}{x - 1}$

In problems 33 - 38, factor the given expression as completely as possible.

33. $x^4 + 3x^2$

34. $3x^2 - 300$

35. $3x^3 + 6x^2 + 3x$

36. $x^2 - 4x - 21$

37. $x^2 - 11x + 24$

38. $x^2 + 12x + 35$

In problems 39 - 43, solve the given equation for x.

39. $x^2 - 25 = 0$

40. $x^2 = 56 + x$

41. $2(x+2)^2 - (x+1)^2 = 14$

42. $x^2 + 1 = 3 - x$

43. $\dfrac{x^2 + 3x - 4}{x^2 - 2x + 1} = 0$

44. The area of a certain rectangle is 40 sq. in. If the rectangle is 3 in. longer than it is wide, what is its perimeter?

45. The sum of two numbers is 5, and their product is -36. Find the numbers.

46. Solve for x: $\dfrac{x^3 - x}{2} = \dfrac{x^2 - x}{3}$.

47. Solve for x: $2x^2 + 3x + 1 = 0$.

48. The difference of two numbers is 9. Their product is 52. Find the numbers.

49. Solve for x: $x^2 - 2x - 4$

50. Solve for x: $x^2 + x - 100$