Geometry Summer Assignment

Instructions: Please print this summer packet and complete it neatly using a <u>pencil</u>. You must show ALL WORK, either on the packet, or on separate paper attached to the packet. Please bring your completed summer assignment the first day of school. This assignment will be collected on the very first day and serve as one of the first grades of the marking period. Points will be taken off for lateness, or for students who do not show their work!

Name_____Date_____

Please solve the following linear equations.

Question	Solution
1. $-20 = -4x - 6x$	
2. $8x - 2 = -9 + 7x$	
3. $4x - 4 = 4x$	
4. $5x - 14 = 8x + 4$	
5. $-8 = -(x + 4)$	
6. $14 = -2(x - 6)$	

7. $- 18 - 6x = 6(1 + 3x)$	
8. $2(4x - 3) - 8 = 4 + 2x$	
9. $- (1 + 7x) - 6(- 7 - x) = 36$	
10. $24x - 22 =- 4(1 - 6x)$	

Please factor the following completely. You are **NOT** solving for a value here.

Example: $2x^2 + 6x$ Example: $x^2 + 4x + 3$

Solution: $2x(x + 3)$ Solution: $(x + 3)(x + 1)$

Problem	Solution
11. $3x^2y + 15xy$	
12. $100xy^2 - 200x^2y$	

13. $x^2 + 4x - 12$

14. $x^2 + x - 90$

15. $x^2 - 13x + 40$

16. $2x^2 + 4x - 48$

17. $x^2 - x - 56$

18. $3x^2 - 2x - 5$

19. $3x^2 - 30x + 63$

Please factor then solve the following quadratic equations. Please leave answers as whole numbers OR fractions.

Example: $x^2 - x + 90 = 0$

Solution: $(x - 10)(x + 9) = 0$

$x - 10 = 0$ OR $x + 9 = 0$

$x = 10$ OR $x = -9$

Problem	Solution(s)
20. $x^2 + 4x - 12 = 0$	
21. $x^2 + 16x + 64 = 0$	
22. $x^2 + 11x + 18 = 0$	

23. $x^2 - 5x = -6$

24. $2x^2 + 6x + 8 = x^2$

25. $2x^2 + 3x - 9 = 0$

26. $5x^2 + 19x + 12 = 0$

27. $2x^2 + 11x = -5$	
28. $x^3 + 2x^2 + x = 0$	

Please expand the following using the distributive property. A common error is illustrated below. Do not make this error.

Example: $(x + 5)^2$

Incorrect: $x^2 + 25$

Correct: $(x + 5)^2 = (x + 5)(x + 5) = x^2 + 5x + 5x + 25 = x^2 + 10 + 25$

Problem	Solution
29. $4x(x + 3)$	
30. $x^2 y(5x - y)$	

31. $(x + 5)(x - 9)$

32. $(x - 3)^2$

33. $x(x + 1)(x - 6)$

34. $(x + 2)(x + 3)(x + 4)$

Please solve the following proportions.

Problem	Solution
35. $\dfrac{x}{3} = \dfrac{2}{6}$	
36. $\dfrac{2x+6}{4} = \dfrac{x}{-10}$	
37. $\dfrac{10}{4x} = \dfrac{5}{20}$	

38. $\dfrac{2}{3x+6} = \dfrac{x+2}{x^2-10}$

Slope-intercept form	$y = mx + b$
Point-slope form	$y - y_1 = m(x - x_1)$
Standard form	$y = Ax + By$
Slope	$m = \dfrac{y_2 - y_1}{x_2 - x_1}$

39. Write the equation of the line in slope-intercept form that has a slope of 2 and passes through the point (3, 5).

40. Write the equation of the line in point-slope form that passes through (2, 0) and (4, 6).

41. Write the equation of the line in standard form that has a slope of 5 and passes through the point (2, 4).

42. Write the equation of the line in **any form** that is parallel to $y = 2x + 4$ and passes through $(-5,\ 6)$.

43. Write the equation of the line in **any form** that is perpendicular to $y = 3x - 7$ and passes through $(7,\ -9)$.

Please simplify the following expressions.

Problem	Solution
44. $\sqrt{72}$	
45. $\sqrt{150}$	
46. $\sqrt{300}$	
47. $\sqrt{\dfrac{9}{54}}$	