Geometry C&C H Summer Assignment **Name:** _____

Please complete the following to the best of your ability and show all of your work. Help will be available during the first week of school with Ms. Keeney. This packet is due on Friday, August 9th.

Polynomial Operations: Simplify each expression by adding, subtracting, or multiplying as indicated. Please put a box around your final answer.

1) $(3k^2 - 3k + 7) + (-4k^2 + 5k + 4)$

2) $(7x^2 + 5x - 8) - (2x^2 - 7x + 2)$

3) $(3x^2 + 8x + 6) - (1 - 5x)$

4) $(4b^4 - 3b^2 + 6b) + (b^4 + 3b^2)$

5) $(8x + 3)^2$

6) $(7m - 3)(m + 3)$

7) $(3r^4 + 4r^2) + (r^4 - 6r^2)$

8) $(8n + 7y - 2) + (4n + 8)$

9) $(-2x + 5) - (-4x^2 + 6x + 9)$

10) $(5 - 2xy + x^2 + 7) - (3x^2 + 7 - 4xy)$

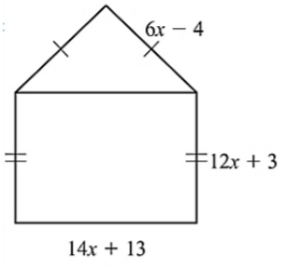
11) $(6x - 1)(4x + 8)$

12) $(8x^2 + 2x + 10)(3x^2 - 9x - 1)$

13) $(-7x^2 + 8x - 4) - (2 - 14x^2)$

14) $(8xy + x^3 - 6) - (-10xy + 7 - 2x^3 + 5x^2)$

15) Write an expression that represents the perimeter of the house drawn to the right.



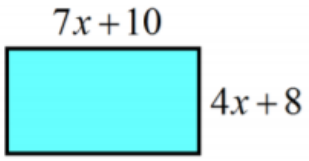
16) $3y(-4x - 6x^3 - 2y)$

17) $2x^2y^2(3xy + 2y + 5x)$

18) $(2x + 5)(3x^2 + x + 2)$

19) $(3x - 1)(9x + 4)$

20) Write an expression that represents the area of this rectangle.



Factoring Polynomials: Factor Completely.

21) $y^2 + 13y + 40$

22) $2y^2 - 6y - 36$

23) $6c^2 + 17c + 5$

24) $4a^2 + a - 3$

25) $2y^3 - 20y^2 - 48y$

26) $5x^3 - 25x^2 - 70x$

27) $x^2 - 9$

28) $16x^2 - 1$

29) $x^2 - 16x + 64$

30) $r^2 + 6r + 9$

Solving Quadratics: In the following equations, solve for x utilizing your preferred method. Use this as an opportunity to practice all four methods of solving: solving by factoring, utilizing the square root method, completing the square, and utilizing the quadratic formula. All four methods will be utilized in Geometry.

31) $x^2 - 9x + 20 = 0$

32) $x^2 - 6x - 16 = 0$

33) $x^2 - 13x + 47 = 7$

34) $x^2 - 100 = 0$

35) $5x^2 - 16x + 12 = 0$

36) $3x^2 - 18x + 15 = 0$

37) $x^2 + 10x + 15 = 0$

38) $2x^2 + 10x = 1$

39) $3x^2 + 6x + 3 = 0$

40) $8x^2 - 4x + 7 = 2$

41) A ball is thrown into the air from a height of 4 feet at time t = 0. The function that models this situation is $h(t) = -16t^2 + 63t + 4$, where t is measured in seconds and h is the height in feet. When will the ball be at 50 feet?

42) A projectile is launched into the air from a height of 6 feet at time t = 0. The function that models this situation is $h(t) = -16t^2 + 18t + 6$, where t is measured in seconds and h is the height in feet. At what time will the ball hit the ground?

43) A school is building a rectangular soccer field that has an area of 6000 square yards. The soccer field must be 40 yards longer than its width. Determine algebraically the dimensions of the soccer field, in yards.

44) The Demon Drop at Cedar Point in Ohio takes riders to the top of a tower and drops them. A function that approximates this ride is $h= -16t^2 + 64t + 60$, where h is the drop height in feet and t is the time in seconds. About how many seconds does it take for riders to drop 60 feet?

45) A picture inside a frame is 2 in longer than it is wide. The picture is in a frame that has a width of 3 in on each side of the picture. If the area of the picture (including the frame) is 195 in^2, find the dimensions of the frame.

46) A rose garden measuring 12 ft. by 7 ft. is surrounded by a grass border of equal width. The total area of the rose garden and border is 300 sq. ft. What is the width of the grass border?

Simplifying Radicals and Radical Operations: Simplify the following.

1. $\sqrt{1800}$

2. $\sqrt{150}(2+\sqrt{30})$

3. $\dfrac{\sqrt{800}}{\sqrt{40}}$

4. $2\sqrt{2400x^{12}w^4}$

5. $-3\sqrt{150}$

6. $4\sqrt{256n^2}$

7. $5(\sqrt{18x^2}+x)$

8. $\dfrac{\sqrt{60}}{\sqrt{30}}$

9. $4\sqrt{6}+\sqrt{54x^{16}}$

10. $5\sqrt{360n^4m^{51}}$

11. $nm\sqrt{n^{15}m^{16}}$

12. $\dfrac{\sqrt{20}}{\sqrt{5}}$

13. $3\sqrt{24}-2\sqrt{384}-\sqrt{96}$

14. $(-5\sqrt{7})^2$

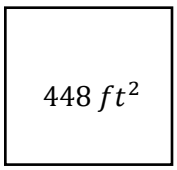
15. $\dfrac{4\sqrt{3}}{\sqrt{30}}$

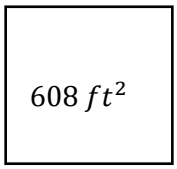
16. $\sqrt{\frac{58}{120}}$

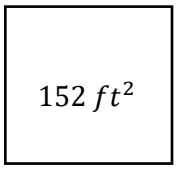
17. $\sqrt{\frac{x^{24}}{196}}$

18. $\frac{3-\sqrt{2}}{\sqrt{5}}$

Given that the below <u>squares</u> have the given area (#19-21) or side lengths (#22-24), find the perimeter of each square.

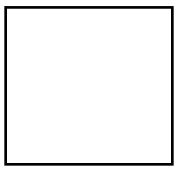




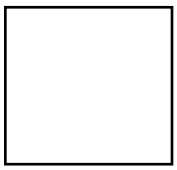


19. Perimeter: _____ **20. Perimeter:** _____ **21. Perimeter:** _____

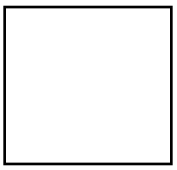
$10\sqrt{20}\ ft$



$3-\sqrt{2}\ ft$



$\sqrt{\frac{225}{256}}\ ft$



22. Perimeter: _____ **23. Perimeter:** _____ **24. Perimeter:** _____

25. The length of a rectangle is $2\sqrt{48}$, and the width is $6\sqrt{3}$. Express in simplest form:

a. The area of the rectangle b. The perimeter of the rectangle?

26. If a square has a side of $\sqrt{5}$, what is the area and perimeter of the rectangle in simplest radical form?

Solving Equations: Solve the following and put a box around your final answer.

27. Find two consecutive odd integers whose sum is – 88.

28. Find three consecutive integers such that the sum of twice the smallest and 3 times the largest is 126.

29. The sum of two-thirds of a number and 7 equals 12 minus the number. Find the number.

Solve the following equations.

30. $2(3x+7)+4(3x+1)=3(5x+9)+3$	31. $\frac{2(x-1)}{6}=\frac{8}{-2}$
32. $4x-7-9x=13+5x$	33. $3x+5(4x-6)-8=23x-14$
34. $-38-7y=2-7(x+6)$	35. $-3(x+5)+2x=-15-x$
36. $\frac{3}{4}(2x+1)=2$	37. $\frac{4x+38}{-2}=2x+9$
38. $81-\frac{4x}{7}=21$	39. $\frac{x}{5}=\frac{x}{2}-\frac{1}{4}$
40. $\frac{5x}{x-2}=\frac{10}{4}$	41. $\frac{5}{x-9}=\frac{8}{x+5}$

Literal Equations: Solve for the specified variable. Please box your final answer.

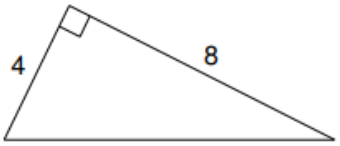
42. Solve for C: $\frac{9}{5}C + 32 = F$

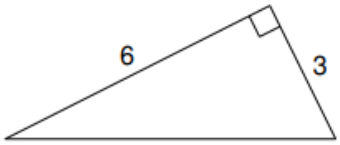
43. Solve for h: $S = 2\pi rh + 2\pi r^2$

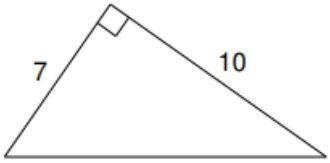
44. Solve for L: $T = \pi RL + B$

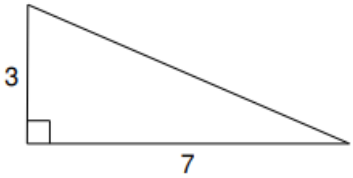
40. Solve for n: $s = \frac{n}{2}(a + t)$

Utilizing the Pythagorean Theorem: Use the Pythagorean Theorem to solve for the missing leg. Express your answer as a simplified radical and box your final answer.



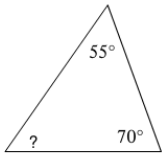






Triangle Angle Sum Theorem (TAST): Solve for the missing angle in the following utilizing the triangle angle sum theorem. Please box your final answer.

1)



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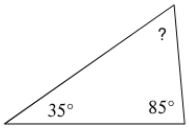

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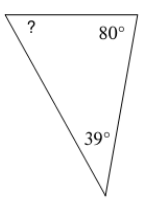

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