Honors Geometry Summer Assignment

The problems found in this assignment are intended to be a review of material found in previous math courses. If a student feels they need additional explanations, please feel free to access several online resources available through www.khanacademy.com and www.themathpage.com.

All work is to be completed on separate paper and turned in Friday of the first week of school. Please ensure that you show all work, it is done neatly and in an organized fashion. All answers are to be exact (i.e. no decimals). This assignment will be graded based on both completeness and accuracy, and will be part of the first marking period grade. No additional assessment will be given.

Best wishes for a happy and healthy summer. See you in September!

Algebra Review
A. Linear Equations
B. Systems of Equations
C. Exponents
D. Radical Expressions
E. Quadratic Equations
F. Simplifying Fractions
G. Coordinate Plane

A. Linear Equations

Find the value of the variable.

1. $3+4n=3(1-8n)$
2. $6+5(7p+3)=-35+7p$
3. $2(x+5)=4+2x$
4. $-8k-26=-4+2(1-8k)$
5. $-7n-(8+6n)=-8n-33$
6. $3+8x=-5+6(8+8x)$

B. System of Equations

Solve each system using substitution.

7. $\begin{aligned} 3x+y&=-10 \\ -7x-7y&=0 \end{aligned}$

8. $\begin{aligned} x+7y&=6 \\ -5x-4y&=1 \end{aligned}$

Solve each system using elimination.

9. $\begin{aligned} -18x+9y&=-27 \\ -4x+2y&=-6 \end{aligned}$

10. $\begin{aligned} -9x+5y&=-8 \\ -6x-3y&=-18 \end{aligned}$

C. Exponents

Simplify

11. $(-4)^3$
12. -3^2
13. 2^{-3}
14. $\left(\frac{5}{4}\right)^0$
15. $2^3 \cdot 3^2 \cdot 4^{-2}$

Simplify. Positive exponents only.

16. $x^3 \cdot x^{-5}$
17. $\frac{h^3}{h^7}$
18. $\left(b^4\right)^3$
19. $\left(3c^2d^{-3}\right)\left(3c^4d^3\right)$
20. $\left(2x^2y^{-4}\right)^2\left(-3xy^5\right)$

D. Radical Expressions

Simplify

21. $\sqrt{27}$
22. $\sqrt{112}$
23. $\sqrt{98}$
24. $\sqrt{147}$
25. $\sqrt{256}$
26. $\sqrt{288}$
27. $\sqrt{512}$

Solve for *x*.

28. $x^2 + 5^2 = 10^2$
29. $5^2 + 12^2 = x^2$
30. $3^2 + x^2 = 7^2$

E. Quadratic Equations

Solve each equation by factoring.

31. $v^2 + 5v - 14 = 0$
32. $a^2 - 6a + 5 = 0$
33. $x^2 - 30 = -x$
34. $x^2 = x$
35. $k^2 + 8k - 8 = -4 + 5k$
36. $n^2 - 17 - 2n = 8 - 2n$

Solve each equation using quadratic formula.

37. $m^2 - 12m = -27$
38. $5x^2 - 18 = -9x$

Solve each equation by completing the square.

39. $r^2 + 10r - 33 = 8$
40. $n^2 + 16n - 26 = 10$

F. Fractions

Simplify.

41. $\frac{18}{8}$

42. $\frac{50n}{25n^2}$

43. $\frac{35m^4}{25m^2}$

44. $-\frac{24x^5}{20x}$

45. $\frac{r+1}{r^2+6r+5}$

46. $\frac{63x^2+9x}{36x^3}$

47. $\frac{n^2-8n-9}{n^2-5n-6}$

48. $\frac{b^2+2b-48}{9b-54}$

G. Coordinate Plane

Find the slope, midpoint, distance and equation of the line between the two given points.

49. $(0,4)$ and $(2,-2)$

50. $(1,-5)$ and $(7,-3)$