## Algebra II Review Unit 1 page 1

Simplify each of the following expressions.

1. $3(2 x+5)-7(5 x-3)=$ $\qquad$
2. $-3(5 x+7)-5(3 x+2)=$ $\qquad$ 4. $7(6 x-3)+4(x-6)=$ $\qquad$

Solve each of the following equations.
5. $8 x+3=15$
6. $6 x-7=7$
2. $4(9 x+6)+3(5 x-8)=$ $\qquad$
7. $9 x+5=5 x+2$
8. $11 x-8=2 x-5$
9. $5(x-7)+3(2 x+15)=x+10$
10. $8(5 x+3)-6(3 x-5)=7+8(3 x+5)$

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Solve each of the formulas for the specified variable.
11. $A=\mathbf{5 b h}$ solve for $b$
12. $3 a x+5 b y=16$ solve for $y$
13. $k x-h t=1-k y+w$ solve for $k$ 14. $3(a x+4)-5(b x+3)=3 x+1 \quad$ solve for $x$

Write an inequality for each of the following intervals and sketch its graph.
15. $[-5,-1]$
16. $(-\infty, 3]$
17. $(2, \infty)$
18. $[0,4)$

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Use interval notation to describe the solution set of each of the following inequalities.
19. $\mathrm{x} \geq 3$
20. $-3<x<1$
21. $\mathrm{x}<0$ $\qquad$ 22. $0 \leq x \leq 3$

Express each of the following as a single interval.
23. $(-2,5) \cap(0,7)=$ $\qquad$ 24. $(-\infty, 3] \cap[-1, \infty)=$ $\qquad$
25. $(0, \infty) \cap[-2, \infty)=$ $\qquad$ 26. $[-1,3] \cup[1,5]=$ $\qquad$
27. $(-\infty, 5) \cup[3,7)=$ $\qquad$ 28. $(-\infty, 2] \cup(-\infty,-3)=$ $\qquad$

Solve each of the following for x . Write the solution set as an interval or the union of intervals and sketch its graph.
29. $5(3 x+1)+3(x-7)>2$
30. $6(3 x-2)+2(x+3)<12+8(2 x-1)$
31. $2(7 x+4)-4(5 x+3) \leq 2$
32. $-3(5 x+7)+4(x+5) \geq x+1$

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Solve each of the following for x . Write the solution set as an interval or the union of intervals and sketch its graph.
33. $-5<3 x+2<4$
34. $-3 \leq 4 x-3 \leq 7$
35. $-3 \leq \frac{5 x+3}{4} \leq-1$
37. $2 x+7<9$ and $-3 x+9<21$
38. $4 x-10 \leq 6$ and $2 x+7 \leq 5$

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Solve each of the following for x . Write the solution set as an interval or the union of intervals and sketch its graph.
39. $-6 x-9 \leq 0$ and $x+3<0$
40. $-2 x+1>1$ or $5 x-8>2$
41. $x-7>-4$ or $5-2 x<9$
42. $6 x-3 \geq 9$ or $4 x-6 \leq 14$

Solve each of the following problems algebraically (one variable solutions please).
43. Tom, Dick, and Harry win a total of $\$ 500$. Tom wins $\$ 10$ less than 3 times the amount Harry wins. Dick wins $\mathbf{\$ 3 0}$ more than twice the amount Harry wins. How much did each person win?

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Solve each of the following problems algebraically (one variable solutions please).
44. Find four consecutive odd integers whose sum is 136.
45. A collection of ordinary nickels, dimes, and quarters is worth a total of $\$ 15$. The number of nickels is 5 less than 3 times the number of dimes, and the number of quarters is $\mathbf{3}$ less than the number of dimes. How many of each are in the collection?
46. The length of a rectangle is $\mathbf{6}$ inches less than twice the width. Find the dimensions of the rectangle if its perimeter is $\mathbf{1 3}$ feet. Express the answers in feet and inches.

