## Algebra II Worksheet \#1 Unit 1 selected solutions

Simplify each of the following expressions.

1. $2(7 x-2)+3(x+3)=\underline{17 x+5}$
2. $3(2 x+5)-6(x-3)=$
33
$(14 x-4)+(3 x+9)$
$(6 x+15)+(-6 x+18)$

Solve each of the following equations. Show your process steps neatly organized.
5. $3 x+7=22$

$$
\begin{gathered}
3 x=15 \\
x=5
\end{gathered}
$$

$$
\text { 9. } \begin{aligned}
4(5 x-3)-7(x-1) & =5(2 x-1) \\
20 x-12-7 x+7 & =10 x-5 \\
13 x-5 & =10 x-5 \\
3 x & =0 \\
x & =0
\end{aligned}
$$

Solve each of the following for the indicated variable. Show your process steps neatly organized.

$$
\text { 15. } \begin{aligned}
& \text { ax }-b y=c x+d \text { solve for } x \\
& \text { ax }-c x=d+b y \\
& (a-c) x=d+b y \\
& x=\frac{d+b y}{a-c}
\end{aligned}
$$

17. $A-a b r=b c^{2} \quad$ solve for $b$

$$
\mathbf{A}=\mathbf{b c} \mathbf{c}^{2}+\mathbf{a b r}
$$

$$
A=\left(c^{2}+a r\right) b
$$

$$
b=\frac{A}{c^{2}+a r}
$$

Solve each of the following word problems algebraically. Show your process steps neatly organized. (Use only one variable in your solutions please.)
20. The length of a rectangle is 2 feet less than twice its width. The perimeter of the rectangle is 15 feet. Find the dimensions of the rectangle. Express your answer using feet and inches.


$$
\begin{aligned}
& 2(2 x-2)+2 x=15 \\
& 4 x-4+2 x=15 \\
& 6 x-4=15 \\
& 6 x=19 \\
& x=19 / 6 \text { ft. or } 3 \text { feet } 2 \text { inches }
\end{aligned}
$$

The length is $\mathbf{4}$ feet $\mathbf{4}$ inches, and the width is $\mathbf{3}$ feet $\mathbf{2}$ inches.

