## Linear Equations; Distributive Property

## Strategy

Transform equations that you don't recognize into $\mathbf{a x}+\mathbf{b}=\mathbf{c}$ format by using the Properties of Real Numbers.

Get rid of the parentheses by using the Distributive Property, combine "like" terms, then go back to our original strategy - write the equation in the $\mathbf{a x}+\mathbf{b}=\mathbf{c}$ format and use the Order of Operations in reverse using the (inverse) opposite operation.

Example: Solve for $\mathbf{x}$;

$$
\begin{aligned}
8 x-2(3 x-7) & =10 \\
8 x-6 x+14 & =10 \\
2 x+14 & =10 \\
2 x & =-4 \\
x & =-2
\end{aligned}
$$

1. $3(2 x+1)-4=11$
2. $4(3 x-2)-2 x=22$
3. $10-2(x-4)=12$
4. $3(2 x-3)+4 x=5 x+16$
5. $8-3(x-2)=-7$
6. $7+2(x+4)=21$
7. $8 \mathrm{x}-4(2 \mathrm{x}+3)=-12$
8. $8 x-4(2 x+3)=7$

We can not make these more difficult, we can only make them longer! Get rid of the parentheses, combine like terms, and write equation in $\mathrm{ax}+\mathrm{b}=\mathrm{c}$ format.
9. $5(2 x+3)-2(x-4)=2 x-1$
10. $5(2 \mathrm{x}+3)-3(\mathrm{x}-2)=2(2 \mathrm{x}+1)+2$

