Simplifying Algebraic Expressions Using the Distributive Property

Quick Review	
The Distributive Property 1: Multiplication distributes over addition and subtraction.	$A(x+y-z)=Ax+Ay-Az$
The Distributive Property 2: Division distributes over addition and subtraction.	$\frac{x+y-z}{A}=\frac{x}{A}+\frac{y}{A}-\frac{z}{A}$

Example: Simplify $4x^2(3x-2)$

solution: $4x^2(3x-2)=4x^2(3x)+4x^2(-2)=12x^3-8x^2$

Note: It is customary to simplify this by handling the negative sign a little differently and writing $4x^2(3x-2)=4x^2(3x)-4x^2(2)=12x^3-8x^2$. Notice that we put the negative sign between the two terms and still get the same result. Use whichever method you prefer.

Example: Simplify $\frac{6x^2-2}{2}$

solution: $\frac{6x^2-2}{2}=\frac{6x^2}{2}+\frac{-2}{2}=3x^2-1$.

Note: It is customary to simplify this by handling the negative sign a little differently and writing $\frac{6x^2-2}{2}=\frac{6x^2}{2}-\frac{2}{2}=3x^2-1$. Notice that we get the same result. Use whichever method you prefer.

Problems

Simplify each of the following expressions as much as possible. Some of the expressions cannot be simplified.

1. $-3x(2-x)$
2. $0.3x^2(x^2-4x+3)$
3. $-2x(a-2b+3c-4d)$
4. $-3x(2x)$

5. $\frac{6a^3 - 4a^2 + 16a}{2a}$

6. $\frac{25q^2 - 15q}{25q}$

7. $\frac{6a^3 + 2}{a + 2}$

8. $\frac{x + 12}{12}$