Additional Problems: Polynomials

**Polynomial Division**

1. Does the below equation demonstrate that you can divide polynomials by recognizing division as the inverse operation of multiplication?

$$\frac{6x^{3}-3x^{2}+9}{3x}=\left(\frac{1}{3x}\right)\left(6x^{3}-3x^{2}+9\right)$$

1. Does the below equation demonstrate that you can divide polynomials by recognizing division as the inverse operation of multiplication?

$$\frac{10x^{4}-5x^{2}+15x}{5x}=\left(\frac{1}{5x}\right)\left(10x^{4}-5x^{2}+15x\right)$$

1. What is the simplified form of $\frac{24x^{2}-16x+8}{4x}$?
2. What is the simplified form of $\frac{15x^{2}-9x+3}{3x}$?
3. Use long division to divide the polynomial $12x^{2}+16x-4$ by $4x+2$. What is the quotient?
4. Use long division to divide the polynomial $18x^{2}+9x-3$ by $3x+1$. What is the quotient?
5. Use long division to find a factor of the polynomial $3x^{2}+14x-5$.
6. Use long division to find a factor of the polynomial $5x^{2}+16x-20$.
7. Use long division to find a factor of the polynomial $4x^{2}+11x-15$.