Algebra 1 Unit 9

Day 6: Factoring – Special Cases

When factoring trinomials, there are a few different types of special cases. To factor these quadratics, we will follow the same steps as before.

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| **Steps** | **Example** |
| 1) Check for a GCF; if there is a GCF, factor it out of all three terms2) Identify a,b, and c3) Draw a large X4) Multiply $a∙c$ 🡪 this number goes on the top of your X5) Put $b$ on the bottom of your X6) List out the factors of the number on top of the X7) Find two factors that multiply the top number and add to the bottom number; place these numbers on the sides of the X8) Divide the side numbers by $a$9) Reduce your fractions (if it is a number over 1, leave it as a fraction over 1)10) For each fraction, the denominator will become a coefficient of x and the numerator will become the constant$$\left(\#x+\#\right)\left(\#x+\#\right)$$ | $$9x^{2}-4$$ |

1) $x^{2}-1$ 2) $16x^{2}-4$

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| **Steps** | **Example** |
| 1) Check for a GCF; if there is a GCF, factor it out of all three terms2) Identify a,b, and c3) Draw a large X4) Multiply $a∙c$ 🡪 this number goes on the top of your X5) Put $b$ on the bottom of your X6) List out the factors of the number on top of the X7) Find two factors that multiply the top number and add to the bottom number; place these numbers on the sides of the X8) Divide the side numbers by $a$9) Reduce your fractions (if it is a number over 1, leave it as a fraction over 1)10) For each fraction, the denominator will become a coefficient of x and the numerator will become the constant$$\left(\#x+\#\right)\left(\#x+\#\right)$$ | $$4x^{2}-20x+25$$ |

3) $4x^{2}-12x+9$ 4) $x^{2}+4x+4$