Factors and Divisibility (Part 2—Required for Honors)

First & Last Name: _____ **Class:** _____

If you did not get full points on the *Factors and Divisibility* section of the "Pre-Review" test, attempt all of the questions on this handout. Check your answers using the answer key. If you did not get a correct answer, use Khan Academy to review and master the topic.
Honor Students: you are expected to master all the questions.

Section 1: Factor quadratics by grouping (KA link)

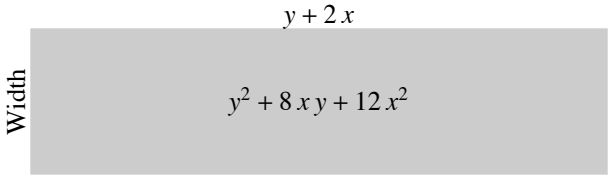
1. Factor $3x^2 - 2x - 1$ completely.
2. Factor $-3x^2 + 19x - 28$ completely.

Section 2: Factor polynomials: quadratic methods (KA link)

1. Factor $p^2 + 5pq - 14q^2$ completely.
2. Factor $-5r^4 - 5r^3 + 60r^2$ completely.
3. Factor $q^{16} - 8q^8 + 15$ completely.

Section 3: Factor polynomials: quadratic methods (challenge) (KA link)

1. Factor $a^2 + 3a - 2ab - 6b$ as the product of two binomials.
2. The rectangle below has an area of $y^2 + 8xy + 12x^2$ square meters and a length of $y + 2x$ meters. What expression represents the width of the rectangle?



Section 4: Difference of squares intro (KA link)

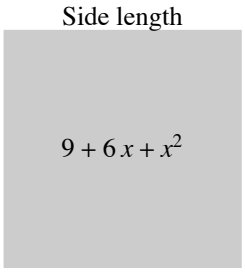
1. Factor $x^2 - 36$ as the product of two binomials.
2. Factor $4 - x^2$ as the product of two binomials.

Section 5: Difference of squares (KA link)

1. Factor $25 - 64y^2$ completely.
2. Factor $3x^2 - 108$ completely.
3. Factor $16t^2 - 1$ completely.

Section 6: Perfect squares intro (KA link)

1. Factor $16 - 8x + x^2$ as the product of two binomials.
2. The square below has an area of $9 + 6x + x^2$. What expression represents the length of one side of the square?



Section 7: Perfect squares (KA link)

1. Factor $1 + 14x + 49x^2$ completely.

2. Factor $2\,w^2 - 44\,w + 242$ completely.
3. Factor $64\,x^2 - 160 + 100$ completely.

Section 8: Factor polynomials: special product forms (KA link)

1. Factor $36\,a^2 - 60\,a\,b + 25\,b^2$ completely.
2. Factor $121\,q^8 - 100$ completely.