Factors and Divisibility (Part 1—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: Factors and divisibility (KA link)

1. Which monomials are divisible by $-8\,p^2\,q$ (choose all answers that apply)?
   a. $16\,p^2\,q$
   b. $72\,p^4\,q^2$
   c. None of the above
2. Which monomials are factors of $-120\,a^8\,b$ (choose all answers that apply)?
   a. $-50\,a^2$
   b. $-4\,a^5$
   c. None of the above
3. A teacher writes the following product on the board:
   $(k^2-4)(k^2-5) = k^4-9\,k^2+20$
   Karim says that $k^4-9\,k^2+20$ is a factor of k^2-4.
   Marci says that k^2-4 is divisible by $k^4-9\,k^2+20$. Who is correct?
   a. Only Karim
   b. Only Marci
   c. Both Karim and Marci
   d. Neither Karim nor Marci

Section 2: Factor monomials (KA link)

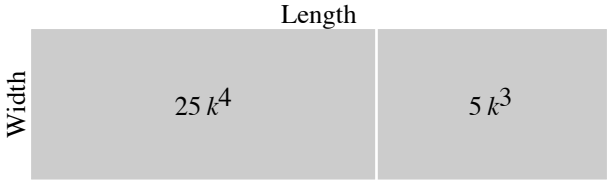
1. Find the missing factor F that makes the equality true.
   $$-36\,b^6 = (F)(9\,b^5)$$
2. A rectangle has an area of $80\,p^5$ square meters and a length of $20\,p$ meters. What is the width of the rectangle?
3. Zach factored $63\,y^8$ as $(9\,y^4)(7\,y^4)$
   Isabella factored $63\,y^8$ as $(3\,y)(21\,y^7)$
   Which of them factored $63\,y^8$ correctly?
   a. Only Zach
   b. Only Isabella
   c. Both Zach and Isabella
   d. Neither Zach nor Isabella

Section 3: Greatest common factor of monomials (KA link)

1. What is the greatest common factor of $24\,x^2$, $12\,x^2$ and $8\,x$?
2. What is the greatest common factor of $32\,p^2\,q^4$ and $20\,p\,q^3$?
3. What is the greatest common factor of $11\,a\,b$ and $9\,a^3$?

Section 4: Factor polynomials: common factor (KA link)

1. Factor $x(x-4)-6(x-4)$ as the product of two binomials.
2. Factor $33r^6-22r^5+88r^3$ by its greatest common monomial factor.
3. The rectangle below has an area of $25k^4+5k^3$ square meters. The width of the rectangle (in meters) is equal to the greatest monomial factor of $25k^4$ and $5k^3$. What is the length and width of the rectangle?



Section 5: Evaluate expressions using structure (KA link)

1. If $x+3y+8z=-12$, what is $24z+3x+9y$?
2. If $x+y+z=6$ and $a+b=5$, what is $-8b-3z-3y-8a-3x$?

Section 6: Warmup: factoring quadratics intro (KA link)

1. Factor $x^2+8x+15$ as the product of two binomials.
2. Factor $p^2-12p+32$ as the product of two binomials.
3. Factor $r^2-3r-18$ as the product of two binomials.

Section 7: Factoring quadratics intro (KA link)

1. Factor $x^2-10x+21$ as the product of two binomials.
2. The rectangle below has an area of $x^2+11x+28$ square meters and a length of $x+7$ meters. What expression represents the width of the rectangle?