Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 13B.2 – More Factoring Completely

#1-10, Factor each polynomial completely until only prime factors remain.

1. $3k^2 - 147$ ← GCF
$= 3(k^2 - 49)$ ← Difference of Two Squares
$= \boxed{3(k+7)(k-7)}$

2. $6x^3 - 24xy^2$ ← GCF
$= 6x(x^2 - 4y^2)$ ← Difference of Two Squares
$= \boxed{6x(x+2y)(x-2y)}$

3. $6d^2 + 12d + 6$ ← GCF
$= 6(d^2 + 2d + 1)$ ← Reverse FOIL
$= \boxed{6(d+1)(d+1)}$

4. $-4m^2x^2 - 4m^2x + 24m^2$ ← GCF (take out a negative)
$= -4m^2(x^2 + x - 6)$ ← Reverse FOIL
$= \boxed{-4m^2(x+3)(x-2)}$

5. $75n^3 - 30n^2 + 3n$ ← GCF
$= 3n(25n^2 - 10n + 1)$ ← Reverse FOIL
$= \boxed{3n(5n-1)(5n-1)}$

6. $8x^4y + 4x^3y - 12x^2y$ ← GCF
$= 4x^2y(2x^2 + x - 3)$ ← Reverse FOIL
$= \boxed{4x^2y(2x+3)(x-1)}$

7. $18j^5k^3 - 15j^4k^4 - 18j^3k^5$ ← GCF
$= 3j^3k^3(6j^2 - 5jk - 6k^2)$ ← Reverse FOIL
$= \boxed{3j^3k^3(3j+2k)(2j-3k)}$

8. $-12p^7q^2 - 60p^6q^3 - 75p^5q^4$ ← GCF (take out a negative)
$= -3p^5q^2(4p^2 + 20pq + 25q^2)$ ← Reverse FOIL
$= \boxed{-3p^5q^2(2p+5q)(2p+5q)}$

9. $2c^7 - 32c$ ← GCF
$= 2c(c^6 - 16)$ ← Difference of Two Squares
$= \boxed{2c(c^3+4)(c^3-4)}$

10. $18t^6 - 170t^4 + 72t^2$ ← GCF
$= 2t^2(9t^4 - 85t^2 + 36)$ ← Reverse FOIL
$= 2t^2(9t^2 - 4)(t^2 - 9)$ ← Difference of Two Squares (twice)
$= \boxed{2t^2(3t+2)(3t-2)(t+3)(t-3)}$