Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 13B.4 – Factoring Completely Forever

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

1. $8c^2 - 24c + 16$ ← GCF

$= 8(c^2 - 3c + 2)$ ← Reverse FOIL

$= \boxed{8(c-2)(c-1)}$

2. $5m^2n - 125n$ ← GCF

$= 5n(m^2 - 25)$ ← Difference of Two Squares

$= \boxed{5n(m+5)(m-5)}$

3. $3r^3 - 48rs^2$ ← GCF

$= 3r(r^2 - 16s^2)$ ← Difference of Two Squares

$= \boxed{3r(r+4s)(r-4s)}$

4. $-3d^2 - 6d + 24$ ← GCF

$= -3(d^2 + 2d - 8)$ ← Reverse FOIL

$= \boxed{-3(d+4)(d-2)}$

5. $48y^3 - 24y^2 + 3y$ ← GCF

$= 3y(16y^2 - 8y + 1)$ ← Reverse FOIL

$= \boxed{3y(4y-1)(4y-1)}$

6. $24m^4n^8 - 12m^3n^8 - 12m^2n^8$ ← GCF

$= 12m^2n^8(2m^2 - m - 1)$ ← Reverse FOIL

$= \boxed{12m^2n^8(2m+1)(m-1)}$

7. $32j^5k^2 - 48j^4k^3 - 32j^3k^4$ ← GCF

$= 16j^3k^2(2j^2 - 3jk - 2k^2)$ ← Reverse FOIL

$= \boxed{16j^3k^2(2j+k)(j-2k)}$

8. $3w^7 - 75w$ ← GCF

$= 3w(w^6 - 25)$ ← Difference of Two Squares

$= \boxed{3w(w^3+5)(w^3-5)}$

9. $-36d^5f^5 - 96d^4f^6 - 64d^3f^7$ ← GCF

$= -4d^3f^5(9d^2 + 24df + 16f^2)$ ← Reverse FOIL

$= \boxed{-4d^3f^5(3d+4f)(3d+4f)}$

10. $8h^6 - 50h^4 + 72h^2$ ← GCF

$= 2h^2(4h^4 - 25h^2 + 36)$ ← Reverse FOIL

$= 2h^2(4h^2 - 9)(h^2 - 4)$ ← Difference of Two Squares

$= \boxed{2h^2(2h+3)(2h-3)(h+2)(h-2)}$