Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 13B.1 – Factoring Completely

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

1. $5x^2 - 20$ ← GCF

$= 5(x^2 - 4)$ ← Difference of Two Squares

$= \boxed{5(x+2)(x-2)}$

2. $4y^3 - 36yz^2$ ← GCF

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

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

3. $2c^2 + 6c - 20$ ← GCF

$= 2(c^2 + 3c - 10)$ ← Reverse FOIL

$= \boxed{2(c+5)(c-2)}$

4. $10jk^2 + 35jk + 15j$ ← GCF

$= 5j(2k^2 + 7k + 3)$ ← Reverse FOIL

$= \boxed{5j(2k+1)(k+3)}$

5. $-10m^2 + 40m + 210$ ← GCF (take out a negative)

$= -10(m^2 - 4m - 21)$ ← Reverse FOIL

$= \boxed{-10(m+3)(m-7)}$

6. $12x^5 + 24x^4 + 12x^3$ ← GCF

$= 12x^3(x^2 + 2x + 1)$ ← Reverse FOIL

$= \boxed{12x^3(x+1)(x+1)}$

7. $-12m^7p^2 - 60m^6p^3 - 75m^5p^4$ ← GCF (take out negative)

$= -3m^5p^2(4m^2 + 20mp + 25p^2)$ ← Reverse FOIL

$= \boxed{-3m^5p^2(2m+5p)(2m+5p)}$

8. $2a^9 - 50a$ ← GCF

$= 2a(a^8 - 25)$ ← Difference of Two Squares

$= \boxed{2a(a^4+5)(a^4-5)}$

9. $192w^6z^5 - 144w^5z^5 + 27w^4z^5$ ← GCF

$= 3w^4z^5(64w^2 - 48w + 9)$ ← Reverse FOIL

$= \boxed{3w^4z^5(8w-3)(8w-3)}$

10. $3r^5 - 60r^3 + 192r$ ← GCF

$= 3r(r^4 - 20r^2 + 64)$ ← Reverse FOIL

$= 3r(r^2-16)(r^2-4)$ ← Difference of Two Squares (twice)

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