Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 13C.2 – More Solving Polynomial Equations

#1-4, Solve each equation.

1. $8x^3 - 4x^2 - 12x = 0$

$4x(2x^2 - x - 3) = 0$

$4x(2x-3)(x+1) = 0$

$4x = 0$ OR $2x-3=0$ OR $x+1=0$

$2x = 3$

$\boxed{x = 0 \text{ OR } x = \frac{3}{2} \text{ OR } x = -1}$

2. $-30n^3 - 115n^2 = 100n$ ← must get a zero on one side before factoring

$-100n \quad -100n$

$-30n^3 - 115n^2 - 100n = 0$

$-5n(6n^2 + 23n + 20) = 0$

$-5n(3n+4)(2n+5) = 0$

$-5n = 0$ OR $3n+4=0$ OR $2n+5=0$

$3n = -4 \qquad 2n = -5$

$\boxed{n = 0 \text{ OR } n = -\frac{4}{3} \text{ OR } n = \frac{-5}{2}}$

3. $8z^4 + 18 = 74x^2$ ← must get a zero on one side before factoring

$-74z^2 \quad -74z^2$

$8z^4 - 74z^2 + 18 = 0$

$2(4z^4 - 37z^2 + 9) = 0$

$2(4z^2 - 1)(z^2 - 9) = 0$

$2(2z+1)(2z-1)(z+3)(z-3) = 0$

$2z+1=0$ OR $2z-1=0$ OR $z+3=0$ OR $z-3=0$

$2z = -1 \qquad 2z = 1$

$\boxed{z = -\frac{1}{2} \text{ OR } z = \frac{1}{2} \text{ OR } z = -3 \text{ OR } z = 3}$

4. $3m^5 = -75m + 78m^3$ ← must get a zero on one side before factoring

$+75m \quad +75m \quad -78m^3$

$-78m^3$

$3m^5 - 78m^3 + 75m = 0$

$3m(m^4 - 26m^2 + 25) = 0$

$3m(m^2 - 25)(m^2 - 1) = 0$

$3m(m+5)(m-5)(m+1)(m-1) = 0$

$3m = 0$ OR $m+5=0$ OR $m-5=0$ OR $m+1=0$ OR $m-1=0$

$\boxed{m = 0 \text{ OR } m = -5 \text{ OR } m = 5 \text{ OR } m = -1 \text{ OR } m = 1}$