Algebra II Academic Key Name_____

Quiz Review - Factoring (ALL METHODS)

Date_____ Period____

Factor each completely.

1) $16k^3 + 28k^2 + 28k + 49$

$4K^2(4K+7)+7(4K+7)$

$(4K^2+7)(4K+7)$

2) $30x^5 - 24x^4 - 45x^3 + 36x^2$

$6x^4(5x-4)-9x^2(5x-4)$

$(6x^4-9x^2)(5x-4)$

$3x^2(2x^2-3)(5x-4)$

3) $80x^4 + 112x^3 - 40x^2 - 56x$

$16x^3(5x+7)-8x(5x+7)$

$(16x^3-8x)(5x+7)$

$8x(2x^2-1)(5x+7)$

4) $5x^3 - 6x^2 + 35x - 42$

$x^2(5x-6)+7(5x-6)$

$(x^2+7)(5x-6)$

5) $n^2 - n$

$n(n-1)$

6) $6n^2 + 6n - 120$

$6(n^2+n-20)$

$6(n-4)(n+5)$

7) $10b^2 + 4b$

$2b(5b+2)$

8) $5x^2 + 38x - 16$

$P(-80)$	$S(38)$
$-2, 40$	✓

$(5x^2+40x)(-2x-16)$

$5x(x+8)-2(x+8)$

$(5x-2)(x+8)$

9) $16n^3 + 124n^2 - 180n$

$4n(4n^2+31n-45)$

P(-180)	S(31)
36, -5	✓

$4n(4n^2+36n)(-5n-45)$

$4n\ \ 4n(n+9)-5(n+9)$

$\boxed{4n(4n-5)(n+9)}$

10) $9v^2 - 89v + 72$

P(648)	S(-89)
-81, -8	✓

$(9v^2-81v)(-8v+72)$

$9v(v-9)-8(v-9)$

$\boxed{(9v-8)(v-9)}$

11) $n^2 - 1$

$\boxed{(n+1)(n-1)}$

12) $a^2 - 2a + 1$

$(a-1)(a-1)$

$\boxed{(a-1)^2}$

13) $4x^2 + 40x + 100$

$4(x^2+10x+25)$

$4(x+5)(x+5)$

$\boxed{4(x+5)^2}$

14) $25k^2 - 1$

$\boxed{(5k+1)(5k-1)}$

15) $108x^3 - 4$

$4(27x^3-1) \rightarrow (3x)^3 - (1)^3$ (a, b)

$4(3x-1)\left[(3x)^2+(3x)(1)+(1)^2\right]$

$\boxed{4(3x-1)(9x^2+3x+1)}$

16) $8m^3 + 1$

$(2m)^3 + (1)^3$ (a, b)

$(2m+1)\left[(2m)^2-(2m)(1)+(1)^2\right]$

$\boxed{(2m+1)(4m^2-2m+1)}$

17) $2m^3 - 128n^3$

$2(m^3-64n^3)$ $(m)^3-(4n)^3$ (a, b)

$2(m-4n)\left[(m)^2+(m)(4n)+(4n)^2\right]$

$\boxed{2(m-4n)(m^2+4mn+16n^2)}$

18) $-3m^3 - 24n^3$

$-3(m^3+8n^3)$ $(m)^3+(2n)^3$ (a, b)

$-3(m+2n)\left[(m)^2-(m)(2n)+(2n)^2\right]$

$\boxed{-3(m+2n)(m^2-2mn+4n)}$