Kuta Software - Infinite Algebra 2

Name_____

Factoring By Grouping

Date_____ Period____

Factor each completely.

1) $12a^3 - 9a^2 + 4a - 3$

$(3a^2 + 1)(4a - 3)$

2) $2p^3 + 5p^2 + 6p + 15$

$(p^2 + 3)(2p + 5)$

3) $3n^3 - 4n^2 + 9n - 12$

$(n^2 + 3)(3n - 4)$

4) $12n^3 + 4n^2 + 3n + 1$

$(4n^2 + 1)(3n + 1)$

5) $m^3 - m^2 + 2m - 2$

$(m^2 + 2)(m - 1)$

6) $5n^3 - 10n^2 + 3n - 6$

$(5n^2 + 3)(n - 2)$

7) $35xy - 5x - 56y + 8$

$(5x - 8)(7y - 1)$

8) $224az + 56ac - 84yz - 21yc$

$7(8a - 3y)(4z + c)$

9) $mz - 5mh^2 - 5nz + 25nh^2$

$(m - 5n)(z - 5h^2)$

10) $12xy - 28x - 15y + 35$

$(4x - 5)(3y - 7)$

11) $40xy + 30x - 100y - 75$

$5(2x - 5)(4y + 3)$

12) $75a^2c - 45a^2d - 30bc + 18bd$

$3(5a^2 - 2b)(5c - 3d)$

13) $192x^2y + 72x^3 - 24rxy - 9rx^2$

$3x(8x - r)(8y + 3x)$

14) $90au - 36av - 150yu + 60yv$

$6(3a - 5y)(5u - 2v)$

15) $140ab - 60a^2 + 168b - 72a$

$4(5a + 6)(7b - 3a)$

16) $105ab - 90a - 21b + 18$

$3(5a - 1)(7b - 6)$

17) $16x^2c + 8xyd - 16x^2d - 8xyc$

$8x(2x - y)(c - d)$

18) $150m^2nz + 20mn^2c - 120m^2nc - 25mn^2z$

$5mn(6m - n)(5z - 4c)$

19) $105xuv + 60xv - 70xu - 90xv^2$

$5x(7u - 6v)(3v - 2)$

20) $112xy - 16x + 128x^2 - 14y$

$2(8x - 1)(7y + 8x)$

Name_____

Factoring A Sum/Difference of Cubes

Date_____ Period____

Factor each completely.

1) $x^3 + 125$

$(x+5)(x^2 - 5x + 25)$

2) $a^3 + 64$

$(a+4)(a^2 - 4a + 16)$

3) $x^3 - 64$

$(x-4)(x^2 + 4x + 16)$

4) $u^3 + 8$

$(u+2)(u^2 - 2u + 4)$

5) $x^3 - 27$

$(x-3)(x^2 + 3x + 9)$

6) $125 - x^3$

$(5-x)(25 + 5x + x^2)$

7) $1 - a^3$

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

8) $a^3 + 125$

$(a+5)(a^2 - 5a + 25)$

9) $x^3 + 27$

$(x+3)(x^2 - 3x + 9)$

10) $x^3 + 1$

$(x+1)(x^2 - x + 1)$

11) $8x^3 + 27$

$(2x+3)(4x^2 - 6x + 9)$

12) $-27u^3 + 125$

$(-3u+5)(9u^2 + 15u + 25)$

13) $-a^3 - 8$

$(-a-2)(a^2-2a+4)$

14) $250x^4 + 128x$

$2x(5x+4)(25x^2-20x+16)$

15) $648a + 1029a^4$

$3a(6+7a)(36-42a+49a^2)$

16) $8a^3 + 125$

$(2a+5)(4a^2-10a+25)$

17) $64x^3 + 1$

$(4x+1)(16x^2-4x+1)$

18) $8x^4 + x$

$x(2x+1)(4x^2-2x+1)$

19) $343m^3 + 64n^3$

$(7m+4n)(49m^2-28mn+16n^2)$

20) $m^3 + 8n^3$

$(m+2n)(m^2-2mn+4n^2)$

21) $a^3 + 343b^3$

$(a+7b)(a^2-7ab+49b^2)$

22) $x^3 - 216y^3$

$(x-6y)(x^2+6xy+36y^2)$

23) $1029yx^3 + 24y^4$

$3y(7x+2y)(49x^2-14xy+4y^2)$

24) $m^3 + 64n^3$

$(m+4n)(m^2-4mn+16n^2)$