Name_____

Factoring Quadratic Form

Date_____ Period_____

Factor each completely.

1) $u^4 + 2u^2$

2) $x^4 + x^2 - 12$

3) $a^4 + 6a^2 + 5$

4) $x^4 - 8x^2 + 15$

5) $u^4 - 4u^2 - 5$

6) $m^4 + 9m^2 + 20$

7) $x^4 + 4x^2 + 3$

8) $x^4 - 7x^2 + 10$

9) $7m^4 - 54m^2 - 16$

10) $7u^4 + 41u^2 + 30$

11) $5x^4 - 9x^2 + 4$

12) $3x^5 - 2x^3 - 8x$

13) $2x^6 + 13x^4 + 6x^2$

14) $2a^4 - 6a^2 + 9$

15) $7m^4 - 44m^2 + 12$

16) $3u^4 - u^2 - 14$

17) $x^6 - 9x^3 + 8$

18) $6x^9n - 30x^5n - 300xn$

19) $x^6 + 4x^3 - 60$

20) $5nu^8 - 15nu^4 + 40n$

21) $x^6 + 2x^3 - 3$

22) $m^6 - 81$

23) $-x^6 + 2x^3 + 15$

24) $x^7m + 2x^4m - 15xm$

Critical thinking questions:

25) Why is this not in quadratic form?

  $x^6 + 5x^4 + 6$

26) Factor: $x^{2n} + 9x^n - 10$

Name_____

Factoring Quadratic Form

Date_____ Period_____

Factor each completely.

1) $u^4 + 2u^2$

$u^2(u^2 + 2)$

2) $x^4 + x^2 - 12$

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

3) $a^4 + 6a^2 + 5$

$(a^2 + 1)(a^2 + 5)$

4) $x^4 - 8x^2 + 15$

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

5) $u^4 - 4u^2 - 5$

$(u^2 - 5)(u^2 + 1)$

6) $m^4 + 9m^2 + 20$

$(m^2 + 4)(m^2 + 5)$

7) $x^4 + 4x^2 + 3$

$(x^2 + 3)(x^2 + 1)$

8) $x^4 - 7x^2 + 10$

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

9) $7m^4 - 54m^2 - 16$

$(7m^2 + 2)(m^2 - 8)$

10) $7u^4 + 41u^2 + 30$

$(7u^2 + 6)(u^2 + 5)$

11) $5x^4 - 9x^2 + 4$

$(5x^2 - 4)(x + 1)(x - 1)$

12) $3x^5 - 2x^3 - 8x$

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

13) $2x^6 + 13x^4 + 6x^2$

$x^2(2x^2 + 1)(x^2 + 6)$

14) $2a^4 - 6a^2 + 9$

Not factorable

15) $7m^4 - 44m^2 + 12$

$(7m^2 - 2)(m^2 - 6)$

16) $3u^4 - u^2 - 14$

$(3u^2 - 7)(u^2 + 2)$

17) $x^6 - 9x^3 + 8$

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

18) $6x^9n - 30x^5n - 300xn$

$6xn(x^4 - 10)(x^4 + 5)$

19) $x^6 + 4x^3 - 60$

$(x^3 - 6)(x^3 + 10)$

20) $5nu^8 - 15nu^4 + 40n$

$5n(u^8 - 3u^4 + 8)$

21) $x^6 + 2x^3 - 3$

$(x - 1)(x^2 + x + 1)(x^3 + 3)$

22) $m^6 - 81$

$(m^3 + 9)(m^3 - 9)$

23) $-x^6 + 2x^3 + 15$

$-(x^3 - 5)(x^3 + 3)$

24) $x^7m + 2x^4m - 15xm$

$xm(x^3 - 3)(x^3 + 5)$

Critical thinking questions:

25) Why is this not in quadratic form?

$x^6 + 5x^4 + 6$

The middle term should have x^3 not x^4

26) Factor: $x^{2n} + 9x^n - 10$

$(x^n + 10)(x^n - 1)$