Name _____

Math PLUS Homework Outline – Unit 8: Factoring Polynomials

Date	Lesson/Objective	Homework	Checked
Monday Nov. 28	Factor out the GCF	HW 8-1	
Tues. Nov. 29	Factor by Grouping	HW 8-2	
Wed. Nov. 30	Factor Trinomials where a = 1	HW 8-3	
Thurs Dec.1	Factor Trinomials where a = 1 and a is not =1	HW 8-4	
Fri. Dec. 2	Factor Trinomials where a is not 1 ***Quiz on Days 1-4***	HW 8-5	
Mon. Dec. 5	Perfect Square Trinomials and Diff of Squares	HW 8-6	
Tuesday Dec. 6	Combined Factoring ***Quiz 2 on Factoring***	HW 8-7	
Wed. Dec. 7	Review	Complete Review WS	
Thurs. Dec. 8	TEST		

10-2

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Practice

Student Edition
Pages 565–571

HW
8-1
1-37 odd

Factoring Using the Distributive Property

Complete.

1. $8m - 6 = 2(4m - \_\_\_\_\_)$
2. $36a^2 + 24b^2 = 12(\_\_\_\_\_ + 2b^2)$
3. $12x^3y - 15xy = \_\_\_\_\_(4x^2 - 5)$
4. $5a^2b - 10a^2b^2 = \_\_\_\_\_(1 - 2b)$

Factor each polynomial.

5. $5a^2 - 15$
6. $7x + 49$
7. $2y + 6xy$
8. $8ax - 56a$
9. $36xy^2 - 48x^2y$
10. $75b^2c^3 + 60bc^6$
11. $64 - 40ab$
12. $81 - 36xy$
13. $t^2h + 3t$
14. $6p - 72$
15. $81r + 48rs$
16. $5c^3 - 2c^2$
17. $82e^3 - 122ef$
18. $10q - 25q^2$
19. $xy^2 + xy$
20. $15cd + 30c^2d^2$
21. $a^2b^2 + a$
22. $6r^2s - 3rs^2$
23. $\ell^2 - 9\ell$
24. $4d^2 + 16$
25. $6z^4 - 18z^3$
26. $20p^2 - 16p^2q^2$
27. $6m^4 - 60$
28. $7a^3 + 14a^2$
29. $16wv^4 + 12w^3v^2$
30. $9c^4d^3 - 6c^2d^4$
31. $6y + 15y^2$
32. $30x^3y + 35x^2y^2$
33. $6e^3f - 11ef$
34. $20r^3s^2 + 25rs^3$
35. $34x^4y^3 - 17x^2y^5$
36. $35m^3n + 105m^2n^3$
37. $2d^2e^2 - 8d^6e^6$

Kuta Software - Infinite Algebra 2

Name_____

Factoring By Grouping

Date_____ Period____

Factor each completely.

HW 8-2
1-10

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

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

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

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

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

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

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

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

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

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

Name _____ Class _____ Date _____

8-5 Practice

Form G

Factoring $x^2 + bx + c$

HW
8 -3
1-41
odd
45,47

Complete.

1. $k^2 + 11k + 30 = (k + 5)(k + \square)$
2. $x^2 + 6x + 9 = (x + 3)(x + \square)$
3. $t^2 + 7t + 10 = (t + 2)(t + \square)$
4. $n^2 + 9n + 14 = (n + 7)(n + \square)$
5. $w^2 + 13w + 36 = (w + 4)(w + \square)$
6. $y^2 + 18y + 65 = (y + 13)(y + \square)$
7. $s^2 - 12s + 32 = (s - 8)(s - \square)$
8. $g^2 - 14g + 45 = (g - 9)(g - \square)$
9. $v^2 - 17v + 60 = (v - 12)(v - \square)$
10. $q^2 - 13q + 42 = (q - 6)(q - \square)$
11. $d^2 - 9d + 8 = (d - 8)(d - \square)$
12. $r^2 - 9r + 20 = (r - 5)(r - \square)$

Factor each expression. Check your answer.

13. $y^2 + 5y + 6$
14. $t^2 + 9t + 18$
15. $x^2 + 16x + 63$
16. $n^2 - 12n + 35$
17. $r^2 - 12r + 27$
18. $q^2 - 12q + 20$
19. $w^2 + 19w + 60$
20. $b^2 - 11b + 24$
21. $z^2 - 13z + 12$

Complete.

22. $q^2 + q - 56 = (q - 7)(q + \square)$
23. $z^2 - 3z - 18 = (z - 6)(z + \square)$
24. $n^2 - 6n - 40 = (n + 4)(n - \square)$
25. $y^2 + 3y - 4 = (y + 4)(y - \square)$
26. $v^2 - 5v - 36 = (v - 9)(v + \square)$
27. $d^2 + 2d - 15 = (d - 3)(d + \square)$
28. $m^2 - 5m - 14 = (m + 2)(m - \square)$
29. $p^2 - 6p - 16 = (p - 8)(p + \square)$

Name _____ Class _____ Date _____

8-5 Practice (continued)

Form G

Factoring $x^2 + bx + c$

Factor each expression. Check your answer.

30. $r^2 + 3r - 10$
31. $w^2 + 2w - 8$
32. $z^2 + 3z - 40$
33. $d^2 - 4d - 12$
34. $p^2 - 7p - 8$
35. $s^2 - 5s - 24$
36. $x^2 + 5x - 6$
37. $v^2 + 3v - 28$
38. $n^2 + 2n - 63$
39. $t^2 - 2t - 24$
40. $a^2 - 7a - 18$
41. $c^2 - c - 30$

42. The area of a rectangular door is given by the trinomial $x^2 - 14x + 45$. The door's width is $(x - 9)$. What is the door's length?

43. The area of a rectangular painting is given by the trinomial $a^2 - 6a - 16$. The painting's length is $(a + 2)$. What is the painting's width?

Write the correct factored form for each expression.

44. $k^2 + 4kn - 96n^2$
45. $g^2 - 13gh + 42h^2$
46. $m^2 - 4mn - 32n^2$
47. $x^2 + 5xy - 14y^2$
48. $s^2 + 17st + 72t^2$
49. $h^2 + 3hj - 88j^2$

50. **Error Analysis** Describe and correct the error made in factoring the trinomial.

~~$x^2 + 2x - 80$~~
~~$= (x + 8)(x - 10)$~~

51. A rectangular pool cover has an area of $p^2 + 9p - 36$. What are possible dimensions of the pool cover? Use factoring.

10-3

NAME _____ DATE _____

Practice

Student Edition
Pages 574–580

HW 8-4
1-21

Factoring Trinomials

Factor each trinomial, if possible. If the trinomial cannot be factored using integers, write prime.

1. $t^2 + 8t + 12$
2. $w^2 + 24w + 144$
3. $m^2 - 7m + 12$
4. $n^2 + 3n - 18$
5. $v^2 - 18v + 80$
6. $p^2 - p - 56$
7. $b^2 + 8b - 22$
8. $x^2 + 7x - 44$
9. $y^2 - 5y - 84$
10. $32 + 18r + r^2$
11. $48 - 16e + e^2$
12. $s^2 + 17s + 52$
13. $102 - 23t + t^2$
14. $u^2 - 16u - 36$
15. $a^2b^2 + ab - 6$
16. $a^2b^2 + 5ab + 6$
17. $m^2 - mv - 56v^2$
18. $j^2 - 9jk - 10k^2$
19. $3h^2 + 2h - 16$
20. $6c^2 + 7c + 2$
21. $5p^2 - 22p + 8$
22. $8m^2 - 10m + 3$
23. $6z^2 - 5z - 4$
24. $15y^2 - y - 2$
25. $18x^2 + 9xz + z^2$
26. $20m^2 + 13mn + 2n^2$
27. $5\ell^2 - 26\ell x + 5x^2$
28. $15s^2 - 16st + 4t^2$

Name _____ Class _____ Date _____

8-6 Practice

Form G

Factoring $ax^2 + bx + c$

HW
8-5
1-15 odd
20, 21

Factor each expression.

1. $2w^2 + 13w + 15$
2. $3d^2 + 20d + 12$
3. $4n^2 + 26n - 32$
4. $3p^2 - 7p - 40$
5. $6r^2 - 10r - 24$
6. $5z^2 - 17z + 14$
7. $14k^2 - 32k + 63$
8. $2m^2 - m - 15$
9. $3x^2 + 9x - 84$
10. $4y^2 + 26y + 30$
11. $5t^2 - 24t - 5$
12. $7c^2 - 2c - 9$
13. $8k^2 - 42k + 27$
14. $6g^2 - 2g - 20$
15. $2c^2 - 36c + 11$

16. The area of a rectangular computer screen is $4x^2 + 20x + 16$. The width of the screen is $2x + 8$. What is the length of the screen?

17. The area of a rectangular granite countertop is $12x^2 + 10x - 12$. The width of the countertop is $2x + 3$. What is the length of the countertop?

18. The area of a rectangular book cover is $4x^2 - 6x - 40$. The width of the book cover is $2x - 8$. What is the length of the book cover?

19. The area of a rectangular parking lot is $21x^2 - 44x + 15$. The width of the parking lot is $3x - 5$. What is the length of the parking lot?

Factor each expression completely. Take out GCF 1st!!

20. $6x^2 - 10x - 4$
21. $6d^2 + 21d + 15$
22. $8n^2 + 68n + 84$
23. $20p^2 - 115p - 30$
24. $15r^2 + 141r - 90$
25. $12z^2 - 14z + 4$
26. $20k^2 + 110k + 120$
27. $9m^2 - 66m + 21$
28. $40x^2 - 136x - 96$
29. $42y^2 + 28y - 14$
30. $8t^2 - 16t - 90$
31. $24c^2 + 96c + 90$

10-4

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Practice

Student Edition
Pages 581–586

HW 8-6
1-35 odd

Factoring Differences of Squares

Factor each polynomial, if possible. If the polynomial cannot be factored, write prime.

1. $a^2 - 4$
2. $y^2 - 1$
3. $x^2 - 64$
4. $1 - 49c^2$
5. $-16 + p^2$
6. $100r^2 - 9$
7. $36 - n^2$
8. $144 - 9f^2$
9. $-r^2s^2 + 81$
10. $5c^2 - 4d^2$
11. $4g^2 - 81h^2$
12. $36j^2 - 49m^2$
13. $8n^2 - 72p^2$
14. $20q^2 - 5r^2$
15. $s^4t^2 - 4t^2$
16. $36n^2 - 25$
17. $49 - 100k^2$
18. $32 - 8n^2$
19. $t^2 - 64u^2$
20. $121r^2 - 1$
21. $2yz^4 - 50yz^2$
22. $25v^5x - 9v^3x$
23. $4t^2 - s^4t^2$
24. $200y^2z^5 - 242y^4z^3$
25. $75x^2 - 147y^2$
26. $32h^2 - 18\ell^2$
27. $x^2 + y^2$
28. $x^2y^2 - z^2$
29. $-4c^2 + 25$
30. $j^2 - 33k^2$
31. $100b^4 - 169$
32. $24e^2 - 54f^4$
33. $32a^2 - 50b^2$
34. $-98r^2 + 8t^2$
35. $x^{12} - 4x^2$
36. $3\ell^2 - \frac{1}{3}$
37. $\frac{1}{4}u^2 - \frac{9}{4}$
38. $9t^6m^4 - 196t^8m^4$
39. $5v^2 - \frac{5}{4}$
40. $64v^7x^3 - 121vx^7$
41. $2z^2 - 196c^2$
42. $85p^2 - 17q^2$

Elementary Algebra Skill

Factoring Using Combined Techniques

HW
8-7
1-29 odd

Factor completely.

1) $8x^2y^2 + 20xy^2 - 28x^3y^4$

2) $5a(a-10) + 12b(a-10)$

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

4) $3(b-4) + m(4-b)$

5) $2t(7-x) - 3z(x-7)$

6) $5c(8+d) + 4e(d+8)$

7) $25n^3 - 35n^2 - 5n + 7$

8) $21mh + 6mk - 49nh - 14nk$

9) $21xz - 5yc - 35xc + 3yz$

10) $x^2 - 4x - 45$

11) $x^2 - 13x + 30$

12) $n^2 + 16n + 60$

13) $2p^2 - 12p - 32$

14) $x^2 + 17xy + 72y^2$

15) $x^2 - 4xy$

16) $3m^2 + 16m + 5$

17) $10n^2 + 5n - 225$

18) $9n^2 + 36n$

19) $5m^2 - 22m + 21$

20) $20n^2 - 6n - 36$

21) $7x^2 - 54xy - 16y^2$

22) $10x^2 + 17xy + 6y^2$

23) $21x^2 - 69xy + 54y^2$

24) $r^2 - 1$

25) $16x^2 - y^2$

26) $45x^2 - 20$

27) $12x^2 - 27y^2$

28) $x^2 - 10x + 25$

29) $9m^2 + 24mn + 16n^2$

30) $27b^3 - 8y^3$