Correct from last day: Factoring Worksheet #1-30

MCF 3MI **Factoring Practice**

Copy each question in your workbook. Then, factor the following, completely.

1. $7x^2y-28x^3y^2+21x^2y^3$
2. $x^2-7x+12$
3. $x^2-23x+76$
4. $m(2x-1)-5(1-2x)$
5. $2x^2+17x+35$
6. $x^2+4x-12$
7. $x^2-9x+14$
8. $5y^2+27y-18$
9. $4x^3+16x^2-84x$
10. $x^2+19x+18$
11. $5x^2+4x-1$
12. $8m^3-2m^2n-21mn^2$
13. $x^2+5x-14$
14. $4y^2+12yz+9z^2$
15. $10x^4+21x^2+8$
16. $12x^2+26x-10$
17. $x^2+4xy-32y^2$
18. $5x^2+18x-8$
19. $10x^2+x-21$
20. $x^2+4xy-21y^2$
21. $4x^2-15x+9$
22. $8x^2-14x-15$
23. $8x^2-22xy-21y^2$
24. $9x^2-18x-135$
25. $4x^2-16x+15$
26. $5x^2-19x+12$
27. $3x^2+16x-12$
28. $14y^2+77y-147$
29. $16x^2-72xy+81y^2$
30. $6a^4-21a^2-45$

P: 36
5; 12

14. $4y^2+12yz+9z^2$

$=4y^2+6yz+6yz+9z^2$

$=2y(2y+3z)+3z(2y+3z)$

$=(2y+3z)(2y+3z)$

$=(2y+3z)^2$

1 36
2 18
3 12
4 9
6 6

P: 30

30. $6a^4-21a^2-45$

$=3(2a^4-7a^2-15)$

$=3(2a^4-10a^2+3a^2-15)$

$=3(2a^2(a^2-5)+3(a^2-5))$

$=3(a^2-5)(2a^2+3)$

$3a^2$
$-10a^2$

P: -168
12-14

12. $8m^3-2m^2n-21mn^2$

$=m(8m^2-2mn-21n^2)$

$=m(8m^2+12mn-14mn-21n^2)$

$=m(4m(2m+3n)-7n(2m+3n))$

$=m(2m+3n)(4m-7n)$

$+12mn$

$-14mn$

Answers to Factoring Practice:

1. $7x^2y\left(1-4xy+3y^2\right)$
2. $(x-4)(x-3)$
3. $(x-19)(x-4)$
4. $(2x-1)(m+5)$
5. $(2x+7)(x+5)$
6. $(x+6)(x-2)$
7. $(x-7)(x-2)$
8. $(5y-3)(y+6)$
9. $4x(x+7)(x-3)$
10. $(x+18)(x+1)$
11. $(5x-1)(x+1)$
12. $m(2m+3n)(4m-7n)$
13. $(x+7)(x-2)$
14. $(2y+3z)(2y+3z)$ **
15. $\left(5x^2+8\right)\left(2x^2+1\right)$
16. $2(3x-1)(2x+5)$
17. $(x+8y)(x-4y)$
18. $(5x-2)(x+4)$
19. $(5x-7)(2x+3)$
20. $(x+7y)(x-3y)$
21. $(4x-3)(x-3)$
22. $(4x+3)(2x-5)$
23. $(4x+3y)(2x-7y)$
24. $9(x-5)(x+3)$
25. $(2x-3)(2x-5)$
26. $(5x-4)(x-3)$
27. $(3x-2)(x+6)$
28. $7(2y-3)(y+7)$
29. $(4x-9y)(4x-9y)$ **
30. $3\left(2a^2+3\right)\left(a^2-5\right)$

Time to:

Show What You Know

Insert 10 minute class mer

Please clear off and separate your desks.

When you finish the quiz, EXPAND these questions.
(These represent the background to today's lesson.)

a) $(x-5)^2$ b) $(2x+3)^2$ c) $(8x-6)^2$ d) $(3x-4y)^2$

$=(x-5)(x-5)$ $=(2x+3)(2x+3)$ $=(8x-6)(8x-6)$ $=(3x-4y)(3x-4y)$

$=x^2-5x-5x+25$ $=4x^2+6x+6x+9$ $=64x^2-48x-48x+36$ $=9x^2-24xy+16y^2$

$=x^2-10x+25$ $=4x^2+12x+9$ $=64x^2-96x+36$

e) $(x-3)(x+3)$ f) $(5x-4)(5x+4)$ g) $(2x-9y)(2x+9y)$

$=x^2+3x-3x-9$ $=25x^2+20x-20x-16$ $=4x^2+18xy-18xy-81y^2$

$=x^2-9$ $=25x^2-16$ $=4x^2-81y^2$

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) factor a "Perfect-Square Trinomial".

b) factor a "Difference of Squares".

2.5 Factoring Quadratic Expressions: **Special Cases**

MCF 3MI

Date: Feb. 28/19
(Every lesson)

Ex.1 Factor completely (over the integers).

a) $x^2 + 12x + 36$ $= (x+6)^2$

b) $9x^2 - 12x + 4$ $= (3x-2)^2$

c) $25x^2 - 70x + 49$ $= (5x-7)^2$

Note: The above examples are all "perfect-square trinomials".

They can be recognized by:

The first and last numbers are perfect squares, and must be POSITIVE.
If you square root the first and last number, then multiply them together and double the answer, you will get the middle term.

Ex.2 Factoring a "Difference of Squares".

They can be recognized by:

There are ONLY 2 terms, and MUST have a SUBTRACTION SIGN.
BOTH numbers are perfect squares (so you can take their square root).
All variables must have EVEN numbered exponents (so you can cut them in half).

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

b) $x^2 - 81$ $= (x-9)(x+9)$

c) $4x^2 - 9y^2$ $= (2x-3y)(2x+3y)$

d) $4 - 9x^2$ $= (2-3x)(2+3x)$

Ex.2 Factoring a "Difference of Squares".

They can be recognized by:

a) $x^2 - 1$ b) $x^2 - 81$ c) $4x^2 - 9y^2$ d) $4 - 9x^2$

Ex.3 Factor completely (over the integers).

a) $12 - 48x^2$ b) $25y^6 - 100$ c) $4xy - 16xy^3$ d) $-8x^2 + 24x - 18$

Practice: pp. 115-116 # 3, 4abde, 11

READ pp. 118-119

pp. 120-121 # 9, 13, 16, 18

The Unit Summative is Tuesday!!

Work ahead on tomorrow's work as well!!

Practice: pp. 115-116 # 3, 4abde, 11

READ pp. 118-119

pp. 120-121 # 9, 13, 16, 18

The Unit Summative is Friday!!

Work ahead on tomorrow's work as well!!