Are there any questions from last day's assigned work you would like to see on the board?

Correct from last day: pp. 93-94 # 2, 3, 5, 6, 7a, 8, 15

p. 93

3. Factor, using the greatest common factor.

a) $4x^2 - 6x + 2$

b) $5x^2 - 20x$

c) $5a(a + 7) + 2(a + 7)$

d) $4m(3m - 2) - (3m - 2)$

$= 5x(x - 4)$

$= (3m-2)(4m-1)$

f if $w = 3m-2$

$4mw - w$

$= w(4m-1)$

$= (3m-2)(4m-1)$

6. Factor.

K

a) $27x^2 - 9x$

b) $-8m^2 + 20m$

c) $10x^2 - 5x + 25$

d) $-2a^2 - 4a + 6$

e) $3x(x + 7) - 2(x + 7)$

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

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

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

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

extra:

$2x(3x^2+6x+y) - 5y(3x^2+6x+y)$

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

8. The formula for the surface area of a cylinder is $SA = 2\pi r^2 + 2\pi rh$.

A cylinder has a height of 10 units and a radius of r units. Determine a factored expression for its total surface area.

A

$SA = 2\pi r^2 + 2\pi r(10)$

$= 2\pi r^2 + 20\pi r$

$= 2\pi r(r + 10)$

Factoring Warm-up: ***This part is not on the handout.***

a) List all the factors of 12
(This means list all the numbers that divide into 12 with no remainder)

1 12
2 6
3 4
4

b) List all the factors of 20

1 20
2 10
~~3~~
4 5
5

c) List all the factors of 30

1 30
2 15
3 10
~~4~~
5 6

Today's Learning Goal(s):

Date: Sept 30/19 (Every lesson)

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

a) factor simple trinomials of the form $x^2 + bx + c$

MCF 3MI

2.3 Factoring Quadratic Expressions

Recall: Factoring expresses a polynomial as a **product** of polynomials.

$$(x+2)(x+3) = x^2+5x+6$$

(Expanding: $(x+2)(x+3) \to x^2+5x+6$; Factoring: $x^2+5x+6 \to (x+2)(x+3)$)

Whenever you are faced with a factoring question, ALWAYS try to Common Factor FIRST!

Ex.1 Factor the following trinomials.

a) $x^2 + 8x + 15$ Product: 15 Sum: 8

$=x^2+3x+5x+15$

$=x(x+3)+5(x+3)$

$=(x+3)(x+5)$

1 15
3 5
5 3

b) $x^2 + 7x + 12$ P: 12

1 12
2 6
3 4

$=x^2+3x+4x+12$

$=x(x+3)+4(x+3)$

$=(x+3)(x+4)$

c) $x^2 - 7x + 12$

$=x^2-4x-3x+12$

$=x(x-4)-3(x-4)$

$=(x-4)(x-3)$

d) $x^2 + 6x - 16$ P: -16 S: +6

$=x^2-2x+8x-16$

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

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

-1 +16
-2 +8
3
4 +4

e) $x^2 - 3x - 10$

1 10
2 5

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

f) $x^2 - 7xy + 12y^2$

$=(x-4y)(x-3y)$

g1) $3x^2 + 3x - 6$ P: -18 S: 3

$=3x^2-3x+6x-6$

$=3x(x-1)+6(x-1)$

$=(x-1)(3x+6)$

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

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

1 18
2 9
-3 +6
4
5
6

g2) $3x^2 + 3x - 6$ P: -2 -1+2

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

$=3[x^2+2x-x-2]$

$=3[x(x+2)-1(x+2)]$

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

h) $x^2 + 4x + 7$ P: 7

1 7

DNF (Does NOT Factor)

i) $2x^2 + 18x + 40$

$=2(x^2+9x+20)$

$=2(x+4)(x+5)$

1 20
2 10
3
4 5

j) $-2x^2 + 16x - 30$

$=-2(x^2-8x+15)$

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

Today's Assigned Practice includes: pp. 99 - 100 # 2, 3, 6, 7, 9, 14 & **READ pp. 101-102**