

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, 15d

p. 93 3. Factor, using the greatest common factor.

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

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

b) $5x^2 - 20x$

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

6. Factor.

K a) $27x^2 - 9x$

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

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

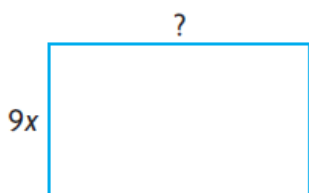
e) $3x(x + 7) - 2(x + 7)$

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

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

- p. 93 7. The area, A , of each figure is given. Determine the unknown measurement.

a) $A = 18x^2 - 9x$



$$\begin{aligned} A &= 18x^2 - 9x \\ &= 9x(2x - 1) \end{aligned}$$

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.

$$\begin{aligned} SA &= 2\pi r^2 + 2\pi r(10) \\ &= 2\pi r^2 + 20\pi r \\ &= 2\pi r(r + 10) \end{aligned}$$

p. 94

Extending

15. Factor.

a) $5x^2y - 10xy^2$

b) $10a^2b^3 + 20a^2b - 15a^2b^2$

c) $3x(x + y) - y(x + y)$

d) $5y(x - 2) - 7(2 - x)$

$$= 5y(x-2) - 7(-1)(x-2)$$

$$= \underbrace{5y(x-2)} + \underbrace{7(x-2)}$$

$$= (x-2)(5y+7)$$

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
→
4 5

c) List all the factors of 30

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

Today's Learning Goal(s):

Date: Feb. 27/20
(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.

$$(x+2)(x+3) \overset{\text{Expanding}}{=} x^2 + 5x + 6$$

$$x^2 + 5x + 6 \overset{\text{Factoring}}{=} (x+2)(x+3)$$

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

Ex.1 Factor the following trinomials.

a) $x^2 + 8x + 15$ $\begin{matrix} p: 15 \\ s: 8 \end{matrix}$
 $= x^2 + 3x + 5x + 15$
 $= x(x+3) + 5(x+3)$
 $= (x+3)(x+5)$

b) $x^2 + 7x + 12$ $\begin{matrix} 1 & 12 \\ 2 & 6 \\ 3 & 4 \end{matrix}$
 $= x^2 + 3x + 4x + 12$
 $= x(x+3) + 4(x+3)$
 $= (x+3)(x+4)$

c) $x^2 - 7x + 12$
 $= x^2 - 3x - 4x + 12$
 $= x(x-3) - 4(x-3)$
 $= (x-3)(x-4)$

d) $x^2 + 6x - 16$ $\begin{matrix} -1 & +16 \\ -2 & +8 \\ 3 & \\ -4 & +4 \end{matrix}$
 $= (x-2)(x+8)$
 $x^2 + 6x - 16$
 $= (x^2 - 2)(x^2 + 8)$

e) $x^2 - 3x - 10$ $\begin{matrix} +1 & -10 \\ +2 & -5 \end{matrix}$
 $= (x+2)(x-5)$

f) $x^2 - 7xy + 12y^2$ $\begin{matrix} -1 & -12 \\ -2 & -6 \\ 3 & 4 \end{matrix}$
 $= (x-3y)(x-4y)$

g₁) $3x^2 + 3x - 6$
 $= 3(x^2 + x - 2)$
 $= 3(x-1)(x+2)$

g₂) $3x^2 + 3x - 6$ $\begin{matrix} p=18 \\ 1 & 18 \\ 2 & 9 \\ 3 & 6 \end{matrix}$
 $= 3x^2 + 6x - 3x - 6$
 $= 3x(x+2) - 3(x+2)$
 $= (x+2)(3x-3)$

h) $x^2 + 4x + 7$ $\begin{matrix} 1 & 7 \\ 2 & \end{matrix}$
 DNF

i) $2x^2 + 18x + 40$
 $= 2(x^2 + 9x + 20)$
 $= 2(x+4)(x+5)$

j) $-2x^2 + 16x - 30$ $\begin{matrix} 1 & 15 \\ 2 & 10 \\ +4 & +5 \end{matrix}$
 $= -2(x^2 - 8x + 15)$
 $= -2(x-3)(x-5)$