

Algebra 1 CP

Period(s): _____

Date: _____

Day #: 6Section: 8-4a

LESSON PLAN

A. Warm Up:

CST/CAHSEE: **A1 11.0**1. The factors of $x^2 + 10x + 9$ are:

Ⓐ $(x+2)(x+5)$

Ⓑ $(x+10)(x+9)$

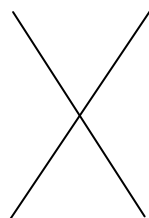
Ⓒ $(x+1)(x+9)$

Ⓓ $(x+3)^2$

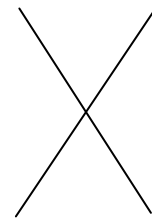
Review:

2. Factor $x^3 + 4x^2 - 2x - 8$ by grouping.

Current:

3. Factor $x^2 - 6x - 27$ using a diamond and generic rectangle.

Preview:

4. Factor $2x^2 + 11x + 12$ using a diamond and generic rectangle.

B. Homework Review:

C. Notes: **Factoring** $ax^2 + bx + c$

Objectives: Factor $ax^2 + bx + c$ using a generic rectangle and diamond. CA Std. 11.0

Review

Reminder:

Multiply $(3x + 2)(2x + 5)$

	$3x$	$+2$
$2x$		
$+5$		

 \longrightarrow

	$3x$	$+2$
$2x$	$6x^2$	$4x$
$+5$	$15x$	10

$$\therefore (3x + 2)(2x + 5) = 6x^2 + 19x + 10$$

Today we will begin with $6x^2 + 19x + 10$ and factor it to $(3x + 2)(2x + 5)$.

Luckily, we already know how to do this.

Factoring

$$ax^2 + bx + c$$

- the coefficient of x^2
(the quadratic term) is a
number other than one.

Ex. 1 Factor $3x^2 + 8x + 5$

GCF of
top row
 \downarrow

	x	$+1$
$3x$	$3x^2$	$3x$
$+5$	$5x$	5

	$15x^2$	
$3x$	\times	$5x$
	$8x$	

What is the product? [$15x^2$]

What is the sum? [$8x$]

$$\therefore 3x^2 + 8x + 5 = (3x + 5)(x + 1)$$

Ex. 2 Factor $6x^2 + 7x + 2$

GCF of
top row
 \downarrow

	$3x$	$+2$
$2x$	$6x^2$	$4x$
$+1$	$3x$	2

	$12x^2$	
$3x$	\times	$4x$
	$7x$	

What is the product? [$12x^2$]

What is the sum? [$7x$]

Practice

You Try: Factor the following:

a) $6x^2 + 11x + 3$

b) $10x^2 + 9x + 2$

Answer:

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

b) $(5x + 2)(2x + 1)$

Ex. 3 Factor $6m^2 - 41m - 7$

GCF of

top row

$1m \quad -7$

▼

$6m$	$6m^2$	$-42m$
$+1$	$+1m$	-7

$$\begin{array}{r} \cancel{-42m^2} \\ \cancel{-42m} \quad +1m \\ \cancel{-41m} \end{array}$$

What is the product? $[-42m^2]$

What is the sum? $[-41m]$

$$\therefore 6m^2 - 41m - 7 = (6m + 1)(m - 7)$$

Ex. 4 Factor $6n^2 - 11n - 10$

GCF of

top row

$2n \quad -5$

▼

$3n$	$6n^2$	$-15n$
$+2$	$+4n$	-10

$$\begin{array}{r} \cancel{-60n^2} \\ \cancel{-15n} \quad +4n \\ \cancel{-11n} \end{array}$$

What is the product? $[-60n^2]$

What is the sum? $[-11n]$

$$\therefore 6n^2 - 11n - 10 = (3n + 2)(2n - 5)$$

Practice

You Try: Factor $4x^2 - 21x - 18$

Answer: $(4x + 3)(x - 6)$

Reflection: Can you see a pattern in the product and sum?

D. Homework: p 509; 31-48