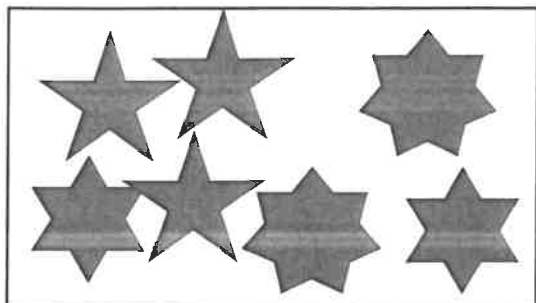# 5.2: Like Terms

Lesson Goals
- Look at an expression and identify like terms.
- Add and subtract polynomials by collecting like terms.

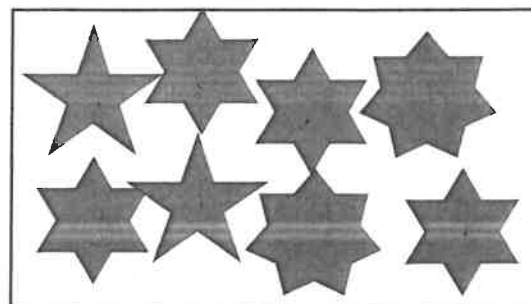How many stars appear in each box below?

Box 1 contains:

_____3_____ 5-point stars

_____2_____ 6-point stars

_____2_____ 7-point stars

Box 2 contains:

_____2_____ 5-point stars

_____4_____ 6-point stars

_____2_____ 7-point stars

Definition

Like terms are terms that have the same variables and the same exponent with those variables. The coefficients do not need to match.

Examples of are: $3xy, \ -yx, \ \ 9xy$. Examples of non-like terms are: $2x, 3x^2$.

Let's go back to first example with the two boxes containing stars:

___5___ 5-point stars total, ___6___ 6-point stars total, ___4___ 7-point stars total

___15___ stars total

We first grouped the stars by type (collecting like terms), then added them together to get the total number of stars (simplifying). This is a more organized way than direct counting.

Example 1

Collect the like terms listed below into the same Groups, in the table shown.

Group A	Group B	Group C	Group D	Group E	Group F
$-2a$	$0.5a^2b^2$	$10ba$	b^2a	$4ba^2$	$75b$
$0.5a$	$10a^2b^2$	$4ab$	$-\frac{4}{7}ab^2$	$\frac{2}{5}a^2b$	$\frac{1}{2}b$
$10a$	$-b^2a^2$	$-0.5ab$	$-2ab^2$	$12a^2b$	$-2b$

$0.5a^2b^2$ $-b^2a^2$ $10ba$ $10a^2b^2$ $4ab$ $12a^2b$

$-2a$ $4ba^2$ b^2a $10a$ $75b$ $-2b$

$0.5a$ $\frac{2}{5}a^2b$ $\frac{1}{2}b$ $-2ab^2$ $-0.5ab$ $-\frac{4}{7}ab^2$