

B: Equivalent Expressions: Collecting Like Terms

Remember:

$2x^2$
↙ coefficient
↘ variable

$2x$
1 variable

$2x^2 + x$

$3x^2y - 7x + 2y$
2 variables

Like Terms

⇒ same variables with same exponents.

$2x, -5x, 7x, -\frac{1}{2}x, -0.67x$ like terms.

$2ab, 3ab, -5ab$

$2a^2b, 2ab^2$ not like terms

Collecting Like Terms

→ When the terms are like you can "put" them together by adding or subtracting.

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

$$(4x^2 + 2x^2) + (3x - 6x) + (-1 - 4) \quad \text{* only combine coefficients.}$$

$$6x^2 - 3x - 5$$

Examples:

1. I identify the like terms in each group.

a) $4a, 10, -14.2a, 3b, -2c$

$4a, -14.2a$

$$b) \frac{3}{4}ab \quad \frac{1}{2}a \quad -8b \quad \frac{3}{4}ab^2 \quad ab$$

$$\frac{3}{4}ab \quad ab$$

2. Collect like Terms.

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

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

$$-8x^2 + 8x$$

$$b) 4g - 8g^2 - 4 + 6g^2 + 4 - 6g$$

$$-8g^2 + 6g^2 + 4g - 6g - 4 + 4$$

$$-2g^2 - 2g + 0 \quad \text{or} \quad -2g^2 - 2g$$

$$c) 6j - 10 + 4j^2 - 2 + 4j - 6j^2$$

$$4j^2 - 6j^2 + 6j + 4j - 10 - 2$$

$$-2j^2 + 10j - 12$$

$$d) x^2 + 2x - 2x^2 + 2$$

$$1x^2 - 2x^2 + 2x + 2$$

$$-1x^2 + 2x + 2$$

$$= -x^2 + 2x + 2$$

$$e) m - 5 + 7 + 4m$$

$$1m + 4m - 5 + 7$$

$$= 5m + 2$$

$$f) 10w - 6 + w^2 - 4w - 8w^2 - 2$$

$$w^2 - 8w^2 + 10w - 4w - 6 - 2$$

$$= -7w^2 + 6w - 8$$

5. Which expressions are equivalent to $-6x^2 + 2x - 8$.

A) $-8 + 6x^2 + 2x$

B) $2x - 8 - 6x^2$

C) $2x^2 + 4 - 8x^2 + 6x - 12 - 4x$

A) $6x^2 + 2x - 8 \neq -6x^2 + 2x - 8$

B) $-6x^2 + 2x - 8 \checkmark$

C) $2x^2 - 8x^2 + 6x - 4x + 4 - 12$
 $-6x^2 + 2x - 8 \checkmark$

A & C are equivalent.

Pg. 187 #5-12.

↓

