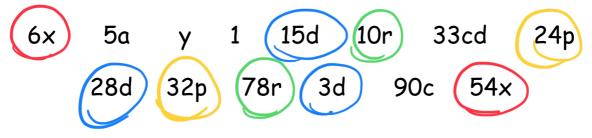7.2   Simplifying Algebraic Expressions

A term is a single number, a single variable, or numbers and variables multiplied together. For example, 5x, 3p, 14, and p are all terms.

LIKE TERMS are terms that are alike. They can be like terms if they have the same variable.

Which of these are like terms?

6x   5a   y   1   15d   10r   33cd   24p

28d   32p   78r   3d   90c   54x

You can simplify expressions by combining like terms:

$$5x + 7x = (5 + 7)x = 12x$$
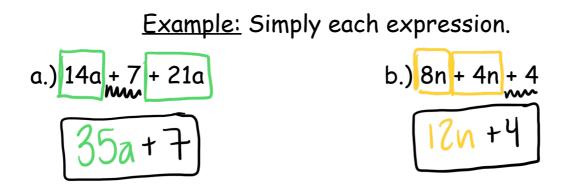
same variable

EXAMPLES:

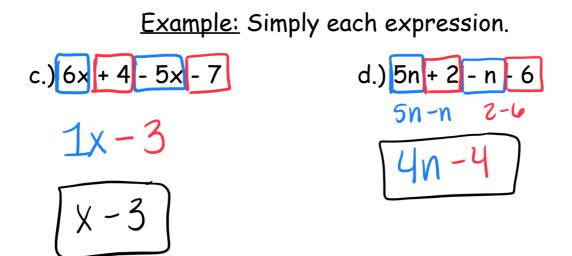6a + 3a = $9a$

5x - 1x = $4x$

11b + 3 + 26b = $37b + 3$

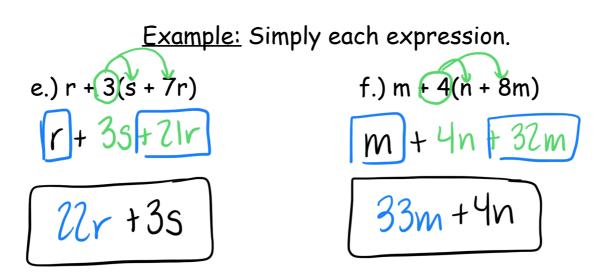The last example (11b + 3 + 26b) had the answer

37b + 3.

This is an example of an answer in SIMPLEST FORM.

An answer is in simplest form when there are no more like terms and no parentheses.

<u>Example:</u> Simply each expression.

a.) 14a + 7 + 21a

35a + 7

b.) 8n + 4n + 4

12n + 4

7.2 Simplifying Algebraic Expressions

<u>Example:</u> Simply each expression.

c.) 6x + 4 - 5x - 7

$1x - 3$

$x - 3$

d.) 5n + 2 - n - 6

5n - n   2 - 6

$4n - 4$

<u>Example:</u> Simply each expression.

e.) r + 3(s + 7r)

r + 3s + 21r

$22r + 3s$

f.) m + 4(n + 8m)

m + 4n + 32m

$33m + 4n$

Example: Simply each expression.

g.) $\boxed{mn}$ + 4m + $\boxed{6n}$ + $\boxed{2mn}$

$$\boxed{3mn + 4m + 6n}$$

h.) $\boxed{3a}$ + 5b + $\boxed{4}$ + $\boxed{6a}$

$$\boxed{9a + 5b + 4}$$

Example: Simply each expression.

i.) 11r + 19(12 + 18r) - 36

$\boxed{11r}$ $\boxed{+ 228}$ $\boxed{+ 342r}$ $\boxed{- 36}$

$$\boxed{353r + 192}$$

j.) -3(m - 1) + 4m + 2

$\boxed{-3m}$ $\boxed{+3}$ $\boxed{+ 4m}$ $\boxed{+2}$

$$1m + 5$$

OR

$$\boxed{m+5}$$