Collecting Like Terms

When solving equations, we'll often need to ***simplify*** the expressions on each side.

Examples

a) $2x + 3x = 20$

b) $18x - 12x = 5 - (-25)$

The process of combining that we just used is called **collecting like terms**.

Remember: We can only combine terms if they are **like terms**!

Example: Simplify by collecting like terms.

a) $7x + 5x - 8x$

c) $8x - 3x + 5 - 2$

b) $6y + 10y + 4z + 8z$

d) $5a - (-2a) + 9$

Sometimes we need to reorder the expressions to help with collecting like terms.

REMEMBER: The sign in front of the term (+ or -) is moved along with the term!

Example $9x + 4 - 5x + 12$

$=$

$=$

More Examples

Simplify.

a) $3x + 10 + 4x - 16$

b) $4y - 5 - 7y + 8 - 1$

Solving Equations That Require Simplification

Example: Solve the following equations (find the value of the variable).

a) $x + 5 - 3 = 9 + 4$

b) $3x + 6 + 2x = -7 - 2$

Try these!

a) $2x + 10 + 2 = 9 - 3$

b) $5y - 4 - 2y = 19 + (-2)$

c) $6 + 3x - 2 - x = 11 + 3(-1)$

Assigned Work (complete on a separate page)

1) Simplify each of the following by collecting like terms.

a) $3x + 6x - 2x$
b) $2x + 8x + 9 + 6$
c) $7y + 8 + 5y + 9$
d) $9k + 10 - 4k - 3$
e) $12x - 6 + 8x - 11$
f) $-4x + 20 + 3x - 32$

2) Solve the following equations.

a) $2x + 4x = 30 + (-6)$
b) $7x - 3x + 5 = 11 - (-4)$
c) $2x + 3 + 2x + 6 = 28 - 10 + 11$
d) $10y + 4 - 8y - 3 = -7 - 2$
e) $-2(-11) = 2x - 13x$
f) $-4g + 6g = 14 + 6$
g) $12 + 6x - 9x = -15$
h) $3x - 7 - x + 4 = -9 + 4$