

<p>eg</p>	<p>Simplify $10x - 10y - 9x - 3x$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr> </table>	x	x	x	x	x	x	x	x	x	x	x	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	<p>$10x + (-10y) + (-9x) + (-3x)$ $= 10x + (-12x) + (-10y)$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-x</td></tr><tr><td>-x</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr> </table>	-x	-x	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	<p>$-2x - 10y$</p>
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
<p>(1)</p>	<p>Simplify $3x^2 + 5y + 4x - 2x^2 - 7y + 2$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x^2</td></tr><tr><td>x^2</td></tr><tr><td>x^2</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>$-x^2$</td></tr><tr><td>$-x^2$</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>1</td></tr><tr><td>1</td></tr> </table>	x^2	x^2	x^2	y	y	y	y	y	x	x	x	x	$-x^2$	$-x^2$	-y	-y	-y	-y	-y	-y	-y	-y	1	1	<p>$3x^2 + 5y + 4x + (-2x^2) + (-7y) + 2$ $= 3x^2 + (-2x^2) + 4x + 5y + (-7y) + 2$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x^2</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>1</td></tr><tr><td>1</td></tr> </table>	x^2	x	x	x	x	-y	-y	1	1																		
x^2																																																					
x^2																																																					
x^2																																																					
y																																																					
y																																																					
y																																																					
y																																																					
y																																																					
x																																																					
x																																																					
x																																																					
x																																																					
$-x^2$																																																					
$-x^2$																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
1																																																					
1																																																					
x^2																																																					
x																																																					
x																																																					
x																																																					
x																																																					
-y																																																					
-y																																																					
1																																																					
1																																																					
<p>(2)</p>	<p>Simplify $4xy + x - 2y + 6yx$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>xy</td></tr><tr><td>xy</td></tr><tr><td>xy</td></tr><tr><td>xy</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>yx</td><td>yx</td></tr><tr><td>yx</td><td>yx</td></tr><tr><td>yx</td><td>yx</td></tr> </table>	xy	xy	xy	xy	x	-y	-y	yx	yx	yx	yx	yx	yx	<p>$4xy + x + (-2y) + 6xy$ $= 4xy + 6xy + x + (-2y)$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>-y</td></tr><tr><td>-y</td></tr> </table>	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	x	-y	-y																									
xy																																																					
xy																																																					
xy																																																					
xy																																																					
x																																																					
-y																																																					
-y																																																					
yx	yx																																																				
yx	yx																																																				
yx	yx																																																				
xy	xy																																																				
xy	xy																																																				
xy	xy																																																				
xy	xy																																																				
xy	xy																																																				
x																																																					
-y																																																					
-y																																																					

Simplify by collecting like terms:

(3) $2x^2 + 4x + 5y - x^2 - 2x - 8y$

(4) $3x + y - 8z + y - 5x + 2y + 2z$

(5) $4 + 6x^2 + 8x - 3x^2 + 5 - 14x$

(6) $-8y + 3x^2 + 7x - 8y - x^2 - 2x + 2x^2 + 3x + 4y$

(7) $-3 - 4x - y + 9x + 11y - 12$

(8) $2x^2 + 3xy - 12y^2 + 10yx + 3y^2 - xy - 9y^2 + 4x^2$

(9) $-11y + 12xy + 10x - 4yx - 10y + 4x$

(10) $15x^2 + 14x - 15y + 8 - 7x^2 + 10 + 2x - 2 + 6y + 16 - 15y$

<p>eg</p>	<p>Simplify $10x - 10y - 9x - 3x$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>-x</td></tr><tr><td>-x</td></tr><tr><td>-x</td></tr> </table>	x	x	x	x	x	x	x	x	x	x	x	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	<p>$10x + (-10y) + (-9x) + (-3x)$ $= 10x + (-12x) + (-10y)$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-x</td></tr><tr><td>-x</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr> </table>	-x	-x	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	-y	<p>$-2x - 10y$</p>
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
x																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-x																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
<p>(1)</p>	<p>Simplify $3x^2 + 5y + 4x - 2x^2 - 7y + 2$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x^2</td></tr><tr><td>x^2</td></tr><tr><td>x^2</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr><tr><td>y</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>$-x^2$</td></tr><tr><td>$-x^2$</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>1</td></tr><tr><td>1</td></tr> </table>	x^2	x^2	x^2	y	y	y	y	y	x	x	x	x	$-x^2$	$-x^2$	-y	-y	-y	-y	-y	-y	-y	1	1	<p>$3x^2 + 5y + 4x + (-2x^2) + (-7y) + 2$ $= 3x^2 + (-2x^2) + 4x + 5y + (-7y) + 2$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x^2</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr><tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>1</td></tr><tr><td>1</td></tr> </table>	x^2	x	x	x	x	-y	-y	1	1	<p>$x^2 + 4x - 2y + 2$</p>																		
x^2																																																					
x^2																																																					
x^2																																																					
y																																																					
y																																																					
y																																																					
y																																																					
y																																																					
x																																																					
x																																																					
x																																																					
x																																																					
$-x^2$																																																					
$-x^2$																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
-y																																																					
1																																																					
1																																																					
x^2																																																					
x																																																					
x																																																					
x																																																					
x																																																					
-y																																																					
-y																																																					
1																																																					
1																																																					
<p>(2)</p>	<p>Simplify $4xy + x - 2y + 6yx$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>xy</td></tr><tr><td>xy</td></tr><tr><td>xy</td></tr><tr><td>xy</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>-y</td></tr><tr><td>-y</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>yx</td><td>yx</td></tr><tr><td>yx</td><td>yx</td></tr><tr><td>yx</td><td>yx</td></tr> </table>	xy	xy	xy	xy	x	-y	-y	yx	yx	yx	yx	yx	yx	<p>$4xy + x + (-2y) + 6xy$ $= 4xy + 6xy + x + (-2y)$</p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr><tr><td>xy</td><td>xy</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>x</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>-y</td></tr><tr><td>-y</td></tr> </table>	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	x	-y	-y	<p>$10xy + x - 2y$</p>																								
xy																																																					
xy																																																					
xy																																																					
xy																																																					
x																																																					
-y																																																					
-y																																																					
yx	yx																																																				
yx	yx																																																				
yx	yx																																																				
xy	xy																																																				
xy	xy																																																				
xy	xy																																																				
xy	xy																																																				
xy	xy																																																				
x																																																					
-y																																																					
-y																																																					

Simplify by collecting like terms:

$$(3) \quad 2x^2 + 4x + 5y - x^2 - 2x - 8y$$

$$= 2x^2 + (-x^2) + 4x + (-2x) + 5y + (-8y) = x^2 + 2x - 3y$$

$$(4) \quad 3x + y - 8z + y - 5x + 2y + 2z$$

$$= 3x + (-5x) + y + y + 2y + (-8z) + 2z = -2x + 4y - 6z$$

$$(5) \quad 4 + 6x^2 + 8x - 3x^2 + 5 - 14x$$

$$= 6x^2 + (-3x^2) + 8x + (-14x) + 4 + 5 = 3x^2 - 6x + 9$$

$$(6) \quad -8y + 3x^2 + 7x - 8y - x^2 - 2x + 2x^2 + 3x + 4y$$

$$= 3x^2 + (-x^2) + 2x^2 + 7x + (-2x) + 3x + (-8y) + (-8y) + 4y = 4x^2 + 8x - 12y$$

$$(7) \quad -3 - 4x - y + 9x + 11y - 12$$

$$= -4x + 9x + (-y) + 11y + (-3) + (-12) = 5x + 10y - 15$$

$$(8) \quad 2x^2 + 3xy - 12y^2 + 10yx + 3y^2 - xy - 9y^2 + 4x^2$$

$$= 2x^2 + 4x^2 + (-12y^2) + 3y^2 + (-9y^2) + 3xy + 10xy + (-xy) = 6x^2 - 18y^2 + 12xy$$

$$(9) \quad -11y + 12xy + 10x - 4yx - 10y + 4x$$

$$= 4x + 10x + (-11y) + (-10y) + 12xy + (-4xy) = 14x - 21y + 8xy$$

$$(10) \quad 15x^2 + 14x - 15y + 8 - 7x^2 + 10 + 2x - 2 + 6y + 16 - 15y$$

$$= 15x^2 + (-7x^2) + 14x + 2x + (-15y) + 6y + (-15y) + 8 + 10 + (-2) + 16$$

$$= 8x^2 + 16x - 24y + 32$$