

## 1.2 Factor by Grouping

## Solutions

Factor.

1.  $xy + 5x + 2y + 10$

	$y$	$5$
$x$	$xy$	$5x$
$2$	$2y$	$10$

$= (x + 2)(y + 5)$

2.  $xy - 4x + 3y - 12$

3.  $6xy - 4x + 9y - 6$

	$3y$	$-2$
$2x$	$6xy$	$-4x$
$3$	$9y$	$6$

$= (2x + 3)(3y - 2)$

4.  $15xy - 10x + 6y - 4$

5.  $xy - 3x - 5y + 15$

	$y$	$-3$
$x$	$xy$	$-3x$
$-5$	$-5y$	$15$

$= (x - 5)(y - 3)$

6.  $2xy - 8x - 3y + 12$

7.  $xy + 10 + 5x + 2y$   
 $= xy + 5x + 2y + 10$

	$y$	$5$
$x$	$xy$	$5x$
$2$	$2y$	$10$

$= (x + 2)(y + 5)$

8.  $xy + 12 + 4x + 3y$

Answers: 1.  $(x + 2)(y + 5)$ ; 3.  $(2x + 3)(3y - 2)$ ; 5.  $(x - 5)(y - 3)$ ; 7.  $(x + 2)(y + 5)$

Factor.

9.  $2xy + 10x + 5 - y$   
 $= 2xy + 10x - y + 5$

$$\begin{array}{r|cc} & y & 5 \\ 2x & 2xy & 10x \\ -1 & -y & 5 \end{array}$$

$$= (2x - 1)(y + 5)$$

10.  $3xy + 4y - 4 - 3x$

11.  $x^2 + 2x - 5x - 10$

$$\begin{array}{r|cc} & x & 2 \\ x & x^2 & 2x \\ -5 & -5x & -10 \end{array}$$

$$= (x - 5)(x + 2)$$

12.  $x^2 + 4x - x - 4$

13.  $6x^2 - 3x + 10x - 5$

$$\begin{array}{r|cc} & 2x & -1 \\ 3x & 6x^2 & -3x \\ 5 & 10x & -5 \end{array}$$

$$= (3x + 5)(2x - 1)$$

14.  $10x^2 - 2ax + 5ax - a^2$

Answers: 9.  $(2x - 1)(y + 5)$ ; 11.  $(x - 5)(x + 2)$ ; 13.  $(3x + 5)(2x - 1)$