

6.3 Factoring by Grouping

1)

	$3x^2$	1
x	$3x^3$	x
6	$18x^2$	6

a) $(x + 6)(3x^2 + 1) = 3x^3 + 18x^2 + x + 6$

3) $4x^2 + 19x - 63$

5) $y^3 + 27$

7)

	1	$2y$
6	6	$12y$
$-x$	$-x$	$-2xy$

$(6 - x)(1 + 2y) = 6 + 12y - x - 2xy$

9) $(-5 + y)(x - 4)$

11)

B)

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

C)

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

D)

	3	-y
2	6	-2y
x	3x	-xy

By area models (B), (C), and (D), we see $3x - xy + 6 - 2y = (x + 2)(3 - y)$.

13) Not factorable

15)

a) $a^2 - 2ab + b^2$

b) $4x^2 + 4xy + y^2$

c) $9x^2 - 42xy + 49y^2$

17) $x = \frac{13}{8} = 1.625$

19) $5x^3 + x^2$