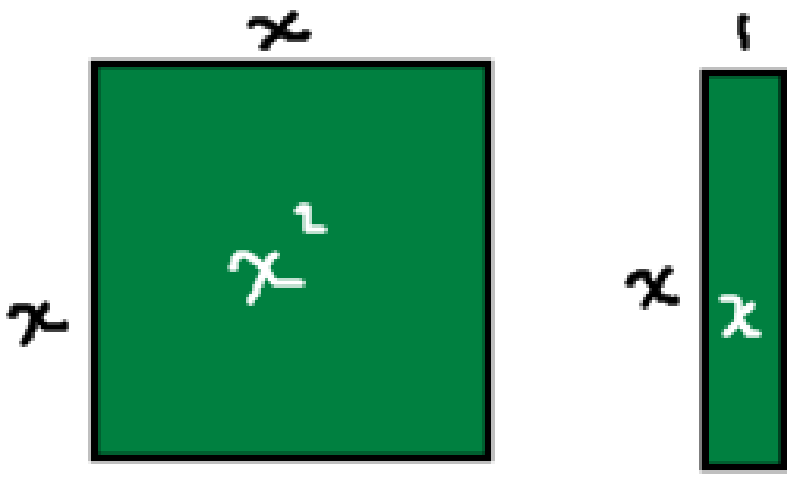
Algebra Tiles



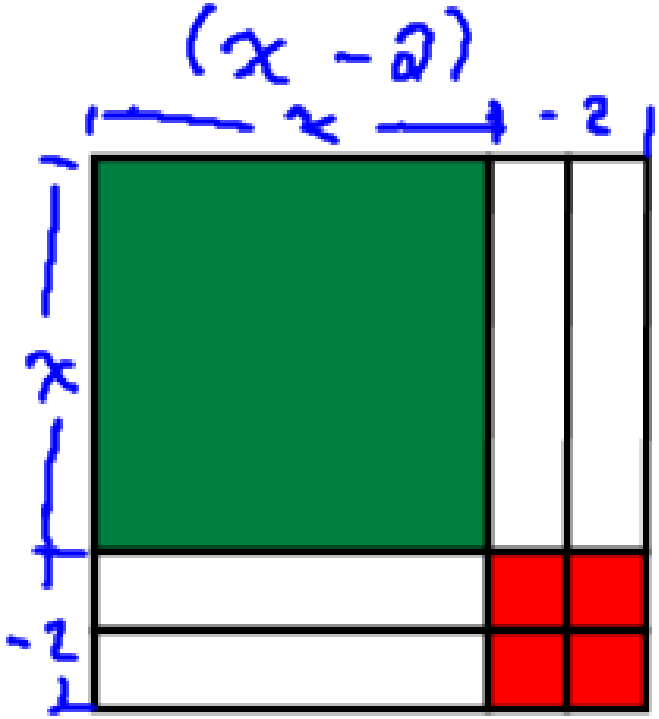
$\text{Area} = x^2 + x + 1$

*Textbook
- yellow - positive
- red - negative

*ours
green/red - positive
white - negative

Formula booklet
- shaded (gray) - positive
- white - negative

What is the area of this shape?



4 cm

3 cm | 12 cm²

area = 12 cm²

area = 3 cm x 4 cm

length x width

Area: $x^2 - 4x + 4$

* I can write the area as polynomial

many terms

OR as product of length & width.

Area = $(x-2)(x-2)$

width x length

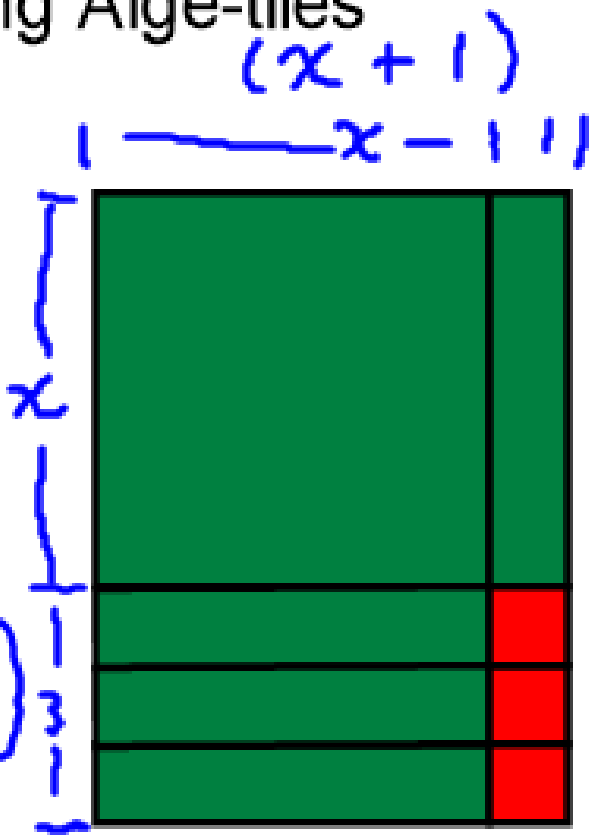
$x^2 - 4x + 4 = (x-2)(x-2)$

polynomial — factors

Write the polynomial as factors using Alge-tiles

$x^2 + 4x + 3$

* make a rectangle

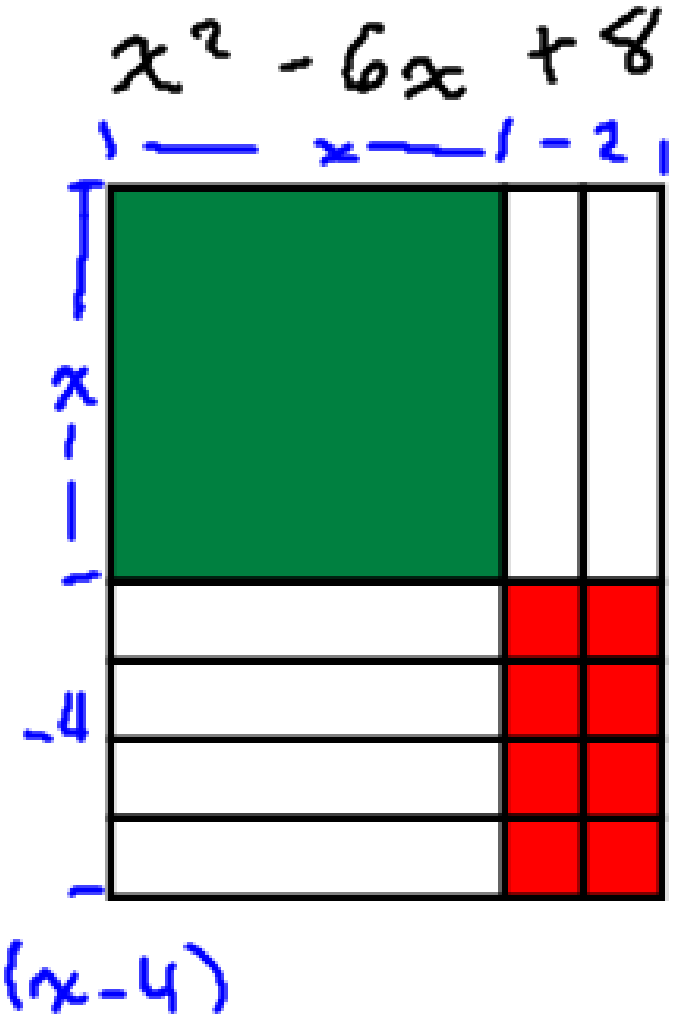


Factor the polynomial means write as a product (length x width)

Area:

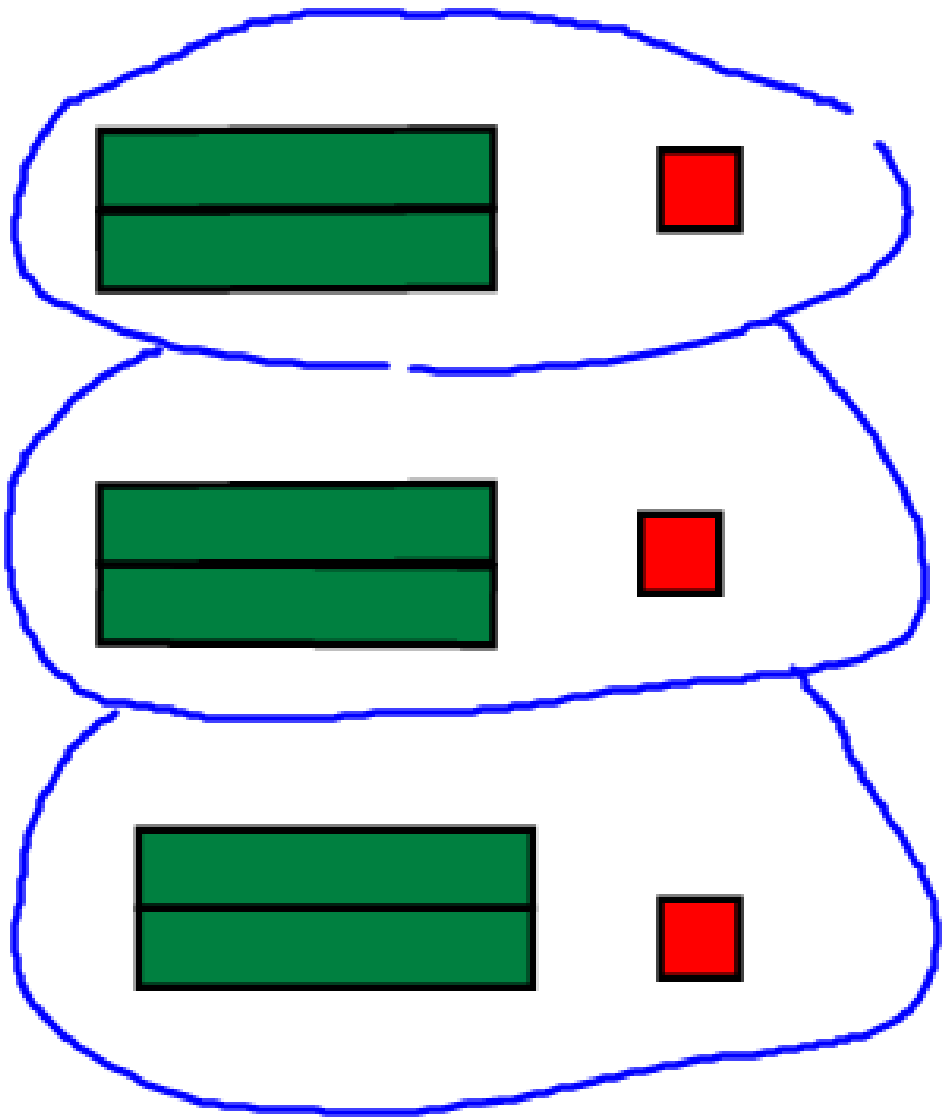
$x^2 + 4x + 3 = (x+1)(x+3)$

Again...



$$x^2 - 6x + 8 = (x-2)(x-4)$$

$6x + 3 = 3(2x + 1)$



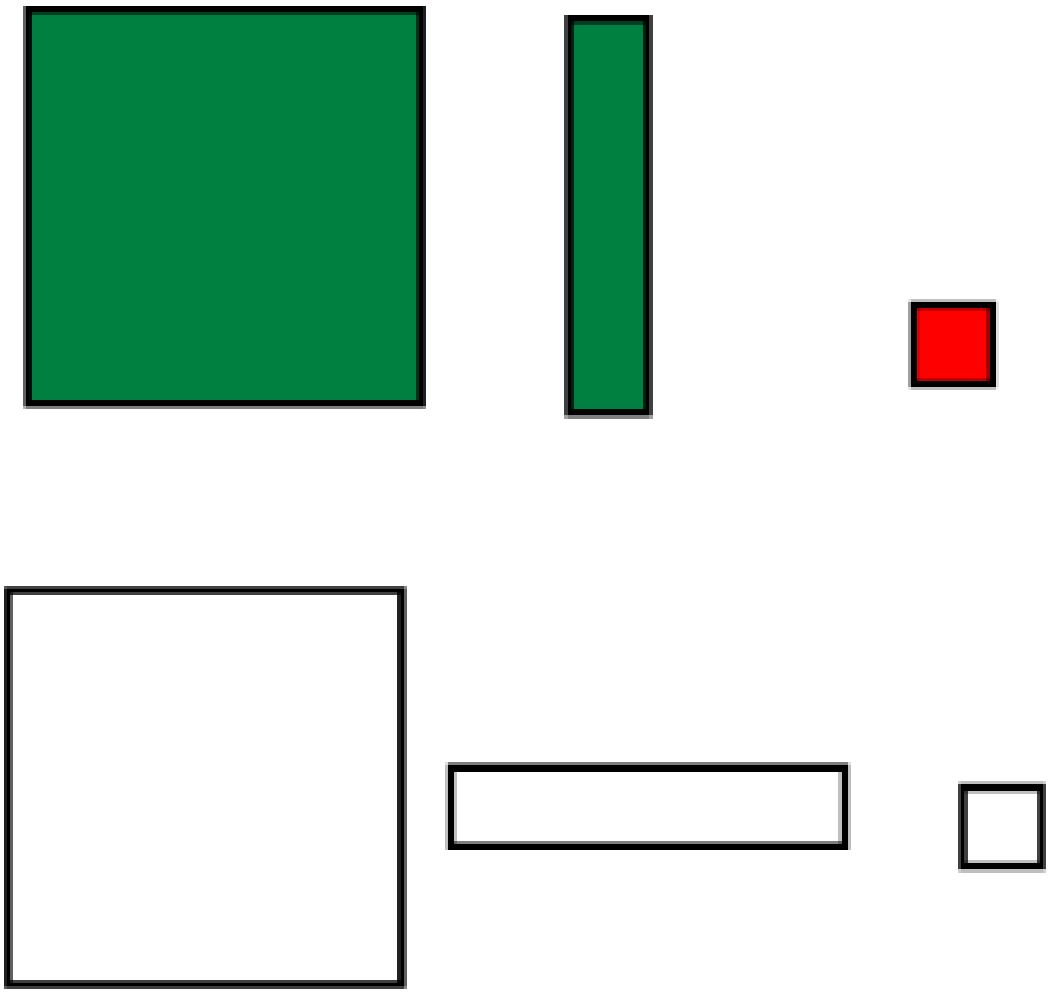
$2x + 1$

3 groups

* check

$6x + 3 = 3(2x + 1)$ ✓

$6x + 3$ ✓



Find GCF....

$5x + 20$

$5x = 5 \cdot x$

$20 = 2 \cdot 2 \cdot 5 \cdot 4$

GCF = 5

$= 5(x + 4)$

* $5x + 20$

Use algebra tiles to show

$5(x + 4)$

p. 158 #1, 2

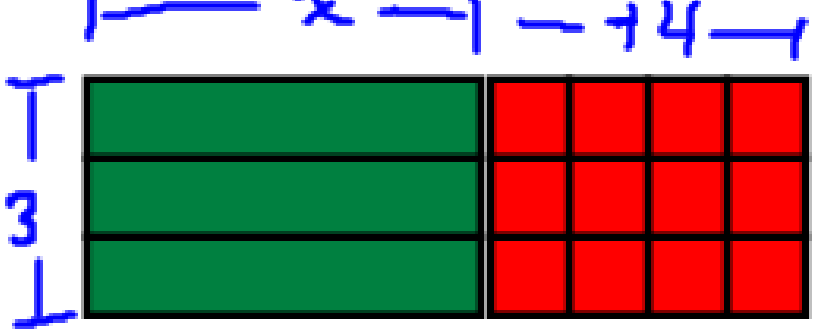
p. 155 #4, 7, 9, 11

yellow
positive

red
negative

p155
#4

a)

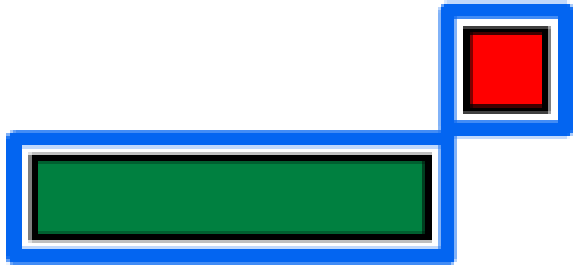


$3x + 12 = (x+4)(3)$

c)

$4(3x^2 - 2x + 4)$ *

$12x^2 - 8x + 16$



always check by expanding.

Using GCF to write as factors

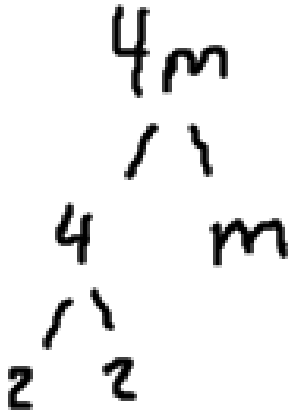
* without using tiles-

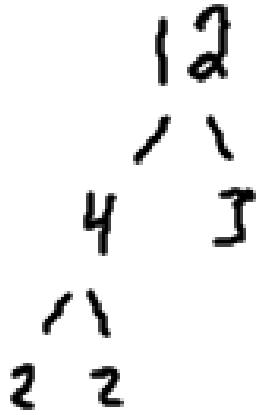
Factor: $4m + 12$

$4m = 2 \cdot 2 \cdot m$

$12 = 2 \cdot 2 \cdot 3$

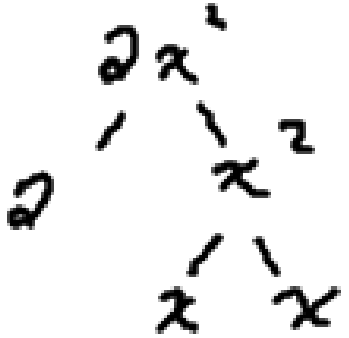
GCF = 4.





$4(m+3) = 4(m+3)$

Factor: $2x^2 + 10x$



$2x^2 = 2 \cdot x \cdot x$

$10x = 2 \cdot 5 \cdot x$

GCF = $2x$

$2x(x + 5)$ * check by expanding *

$2x^2 + 10x$ ✓

Factor: $8d + 12d^2$

$8d = 2 \cdot 2 \cdot 2 \cdot d$

$12d^2 = 2 \cdot 2 \cdot 3 \cdot d \cdot d$

GCF = $4d$.

$4d(2 + 3d)$

$8d + 12d^2$ ✓

:)

More common factoring:

$3x^2y^3 + 12xy^4 - 6x^3y^5$

* include 1 & -1

$3x^2y^3 = 3 \cdot x \cdot x \cdot y \cdot y \cdot y \cdot 1 \cdot x$ GCF: $3xy^3$

$12xy^4 = 2 \cdot 2 \cdot 3 \cdot x \cdot y \cdot y \cdot y \cdot y \cdot 1$ $4y$

$-6x^3y^5 = 2 \cdot 3 \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot -1$ $-2x^2y^2$

$3xy^3(x + 4y - 2x^2y^2)$

$3x^2y^3 + 12xy^4 - 6x^3y^5$ ✓ 11

Do p. 155 - #5, 6, 8, 12-14