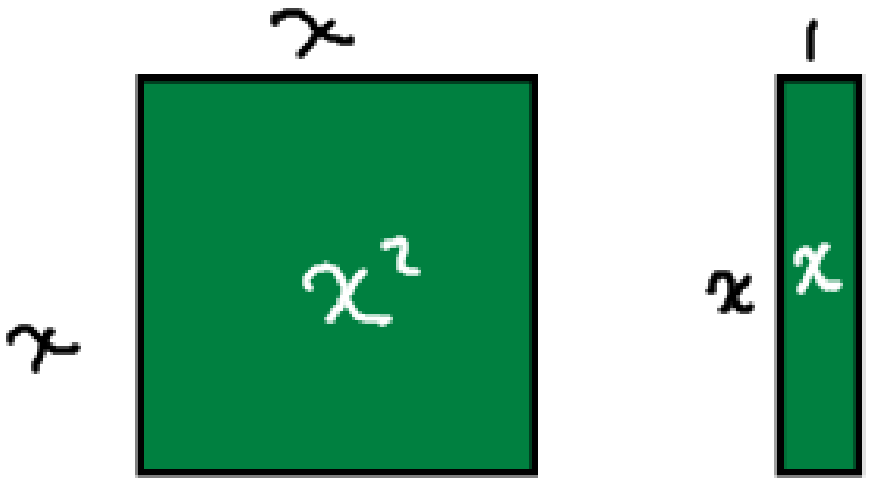
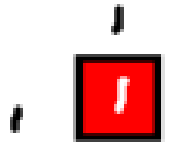
Algebra Tiles





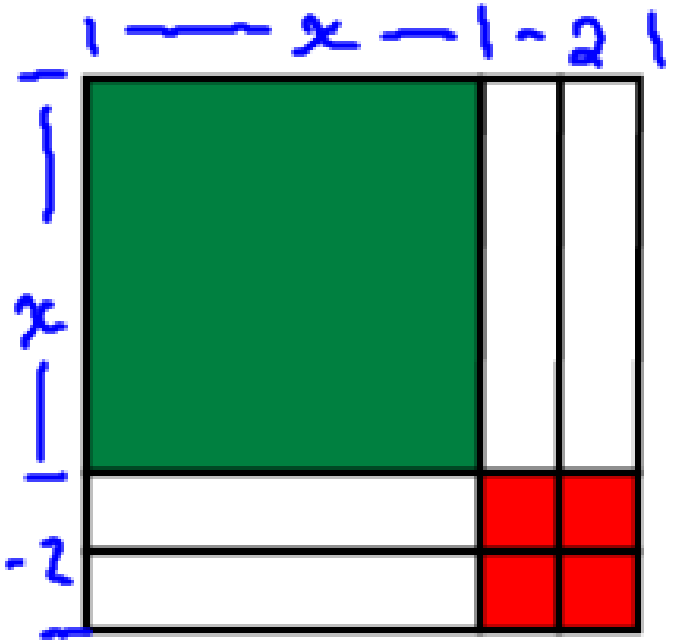
Area: $x^2 + x + 1$

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(4cm)

* I can write the area as polynomial many terms

OR as a product as length x width

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

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

$\ell \times w$

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

polynomial factors

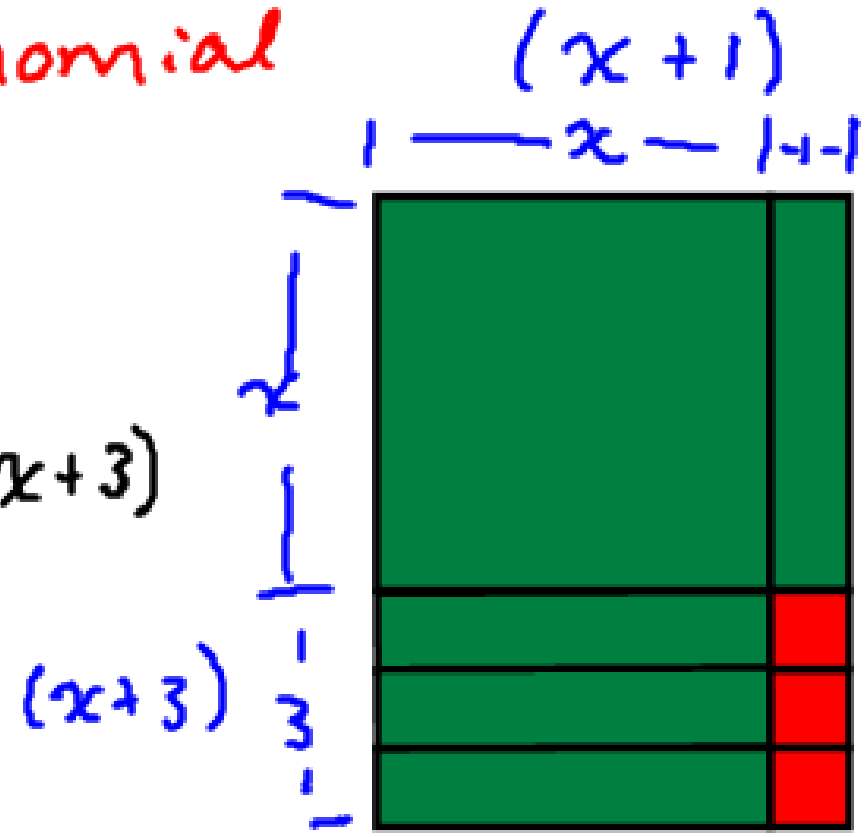
Write the polynomial as factors using Alge-tiles

$x^2 + 4x + 3$

* make a rectangle

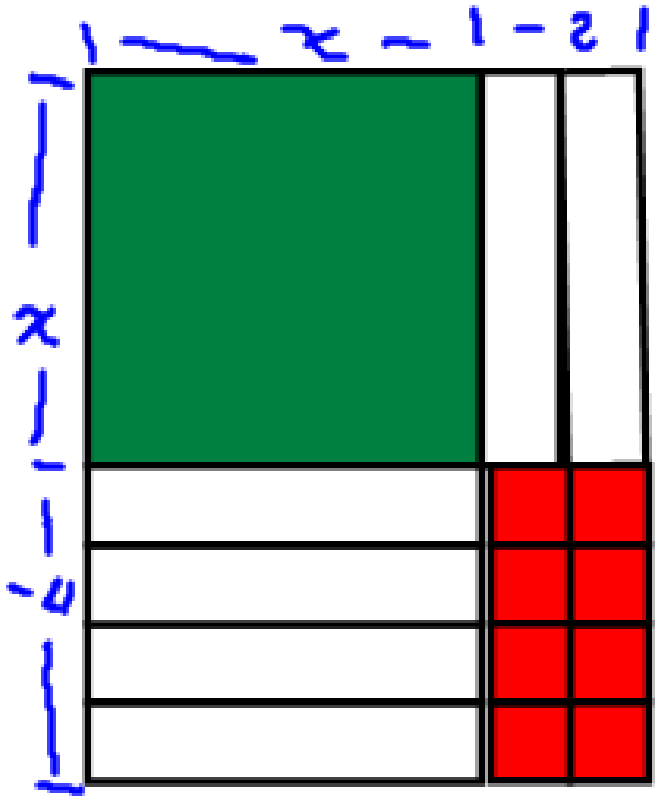
factor the polynomial (write as a product $l \times w$)

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

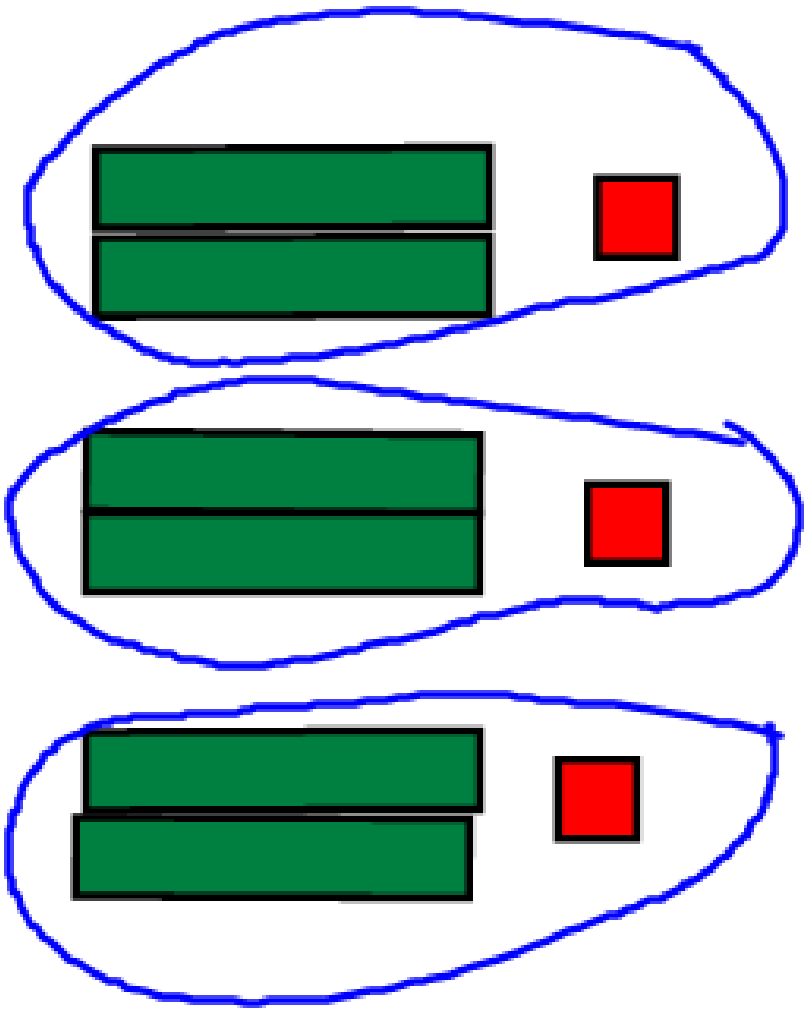


Again...

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



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

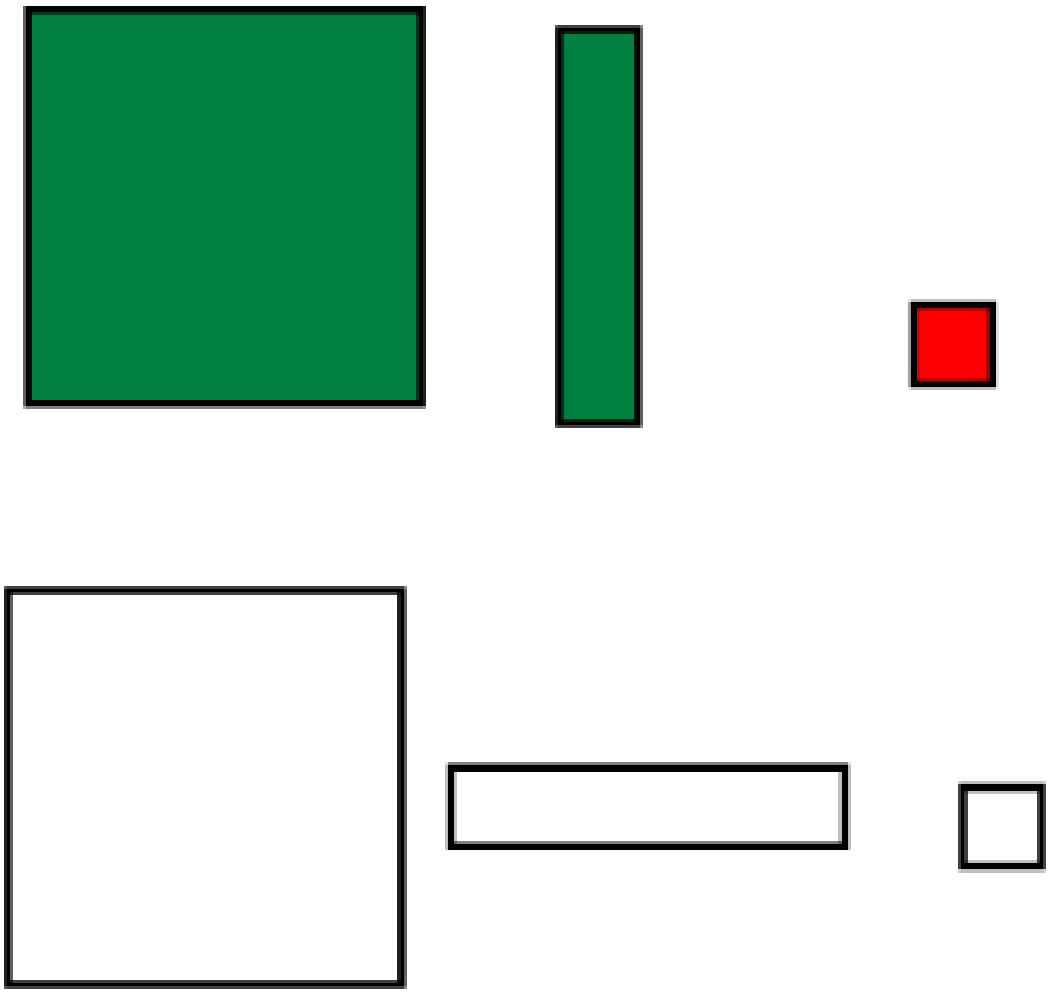


$2x + 1$

* check by expanding.

$3(2x + 1)$

$6x + 3$ ✓



Find GCF....

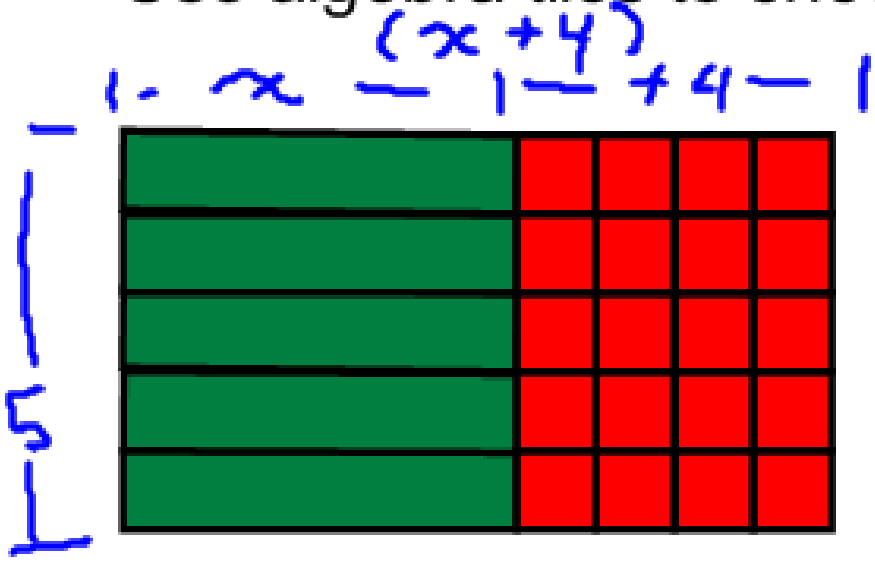
$5x + 20$

$5x = 5 \cdot x$

$20 = 2 \cdot 2 \cdot 5$

$5(x + 4)$

Use algebra tiles to show



$5x + 20 = 5(x + 4)$

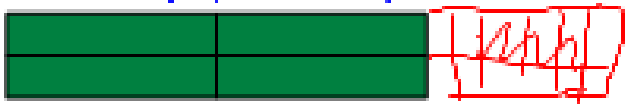
p. 158 #1-4

$4m + 12$

$(4m + 12) = 1(4m + 12)$

$(2m + 6)$

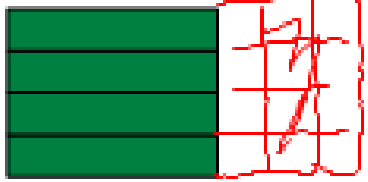
2



$= 2(2m + 6)$

$(m + 3)$

4



$= 4(m + 3)$

Using GCF to write as factors

Factor: $4m + 12$

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

$12 = 2 \cdot 2 \cdot 3$

GCF $= 2 \cdot 2 = 4$

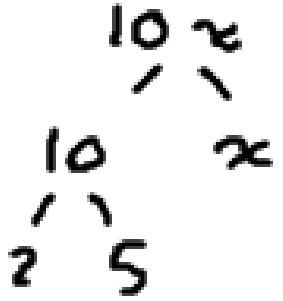
$4(m + 3)$

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

$2x^2 + 10x$ ✓ (2) 11

More common factoring:

$$2x^3 + 4x^2 + 10x$$

$2x^3 = 2 \cdot x \cdot x \cdot x$

$4x^2 = 2 \cdot 2 \cdot x \cdot x$

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

GCF: $2x$

$$2x(x^2 + 2x + 5)$$

* check!

$$2x^3 + 4x^2 + 10x \checkmark$$

* harder.

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

* include 1 & -1

$3x^2y^3 = 3 \cdot x \cdot x \cdot y \cdot y \cdot y \cdot 1$

GCF = $3xy^3$

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

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

$-2x^2y^2$

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

Do p. 155 - #4-14

* Omit 10