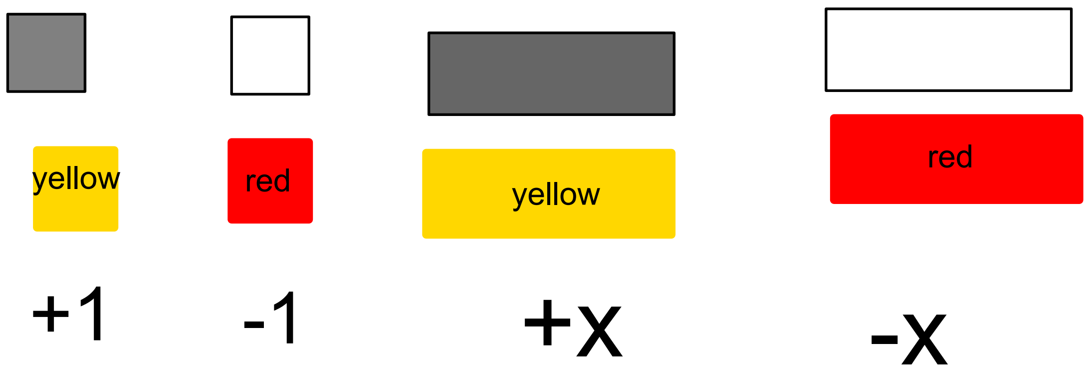
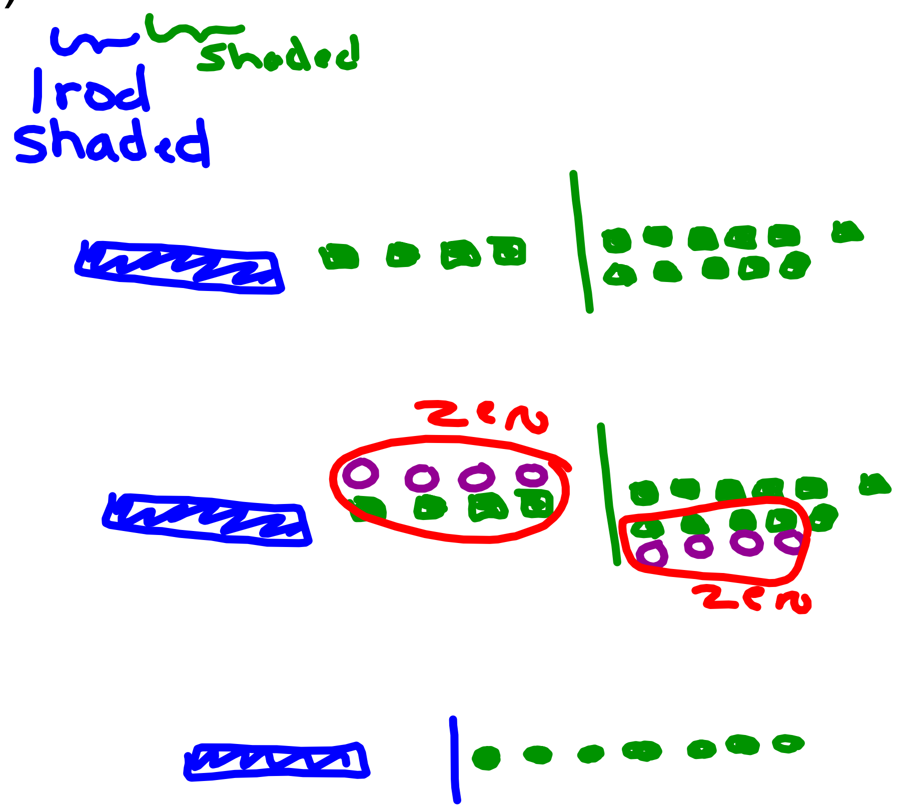
Warm Up Grade 8



Use algebra tiles to solve the equations. Verify the solutions.

1) x + 4 = 11

2) 2x - 7 = 3



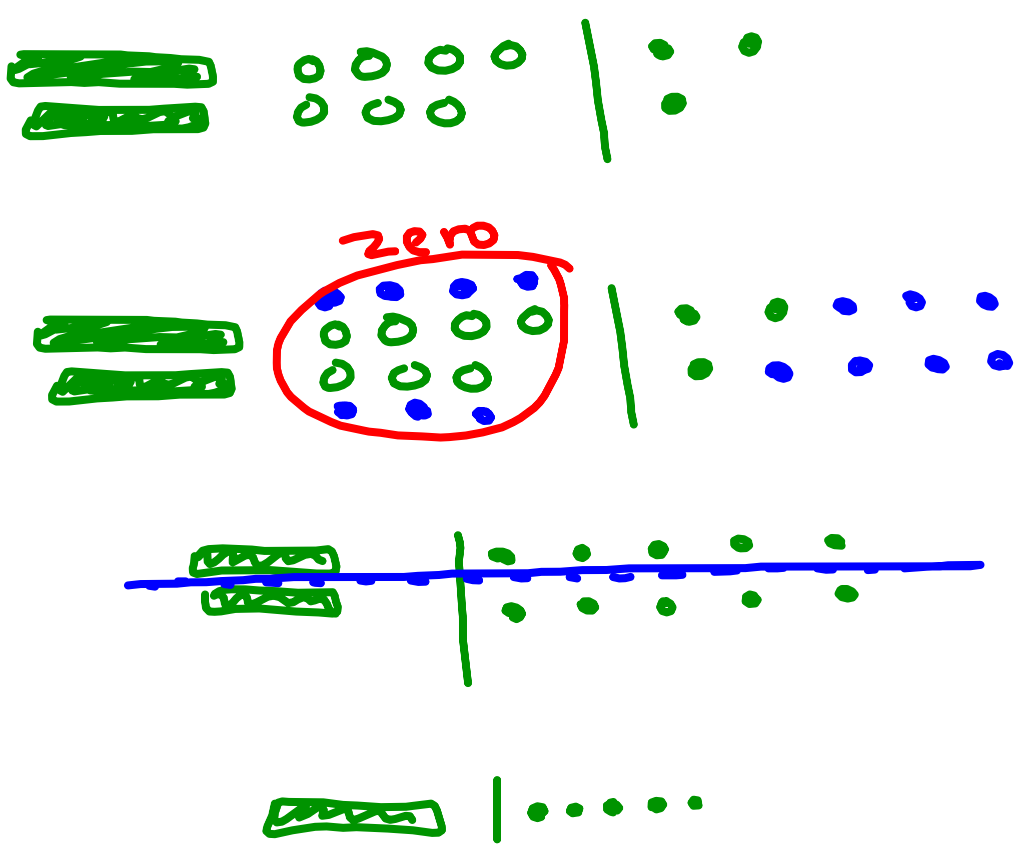
Algebr

$x + 4 = 11$

$x + \cancel{4 - 4} = 11 - 4$

$\boxed{x = 7}$

2) $2x - 7 = 3$



$2x - 7 = 3$

$2x \cancel{- 7 + 7} = 3 + 7$

$2x = 10$

$\div 2 \quad \div 2$

$\boxed{x = 5}$

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1. Might have used h, since Herman starts with H.
You could of used any letter (except 0 or 1)

2. Yes, it doesn't matter which of the equals sign the numbers/letter are on.
No the solution would have been the same.

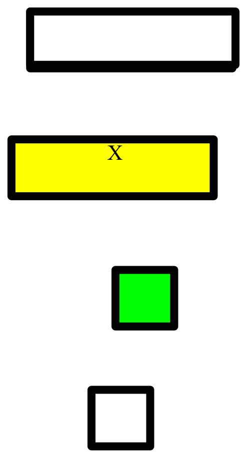
3. $-6-2x=8$
(or $-2x-6=8$, both the same)

4. You can not have negative masses, so you cannot use the balance scales when the number in front of the variable (coefficient) is negative.

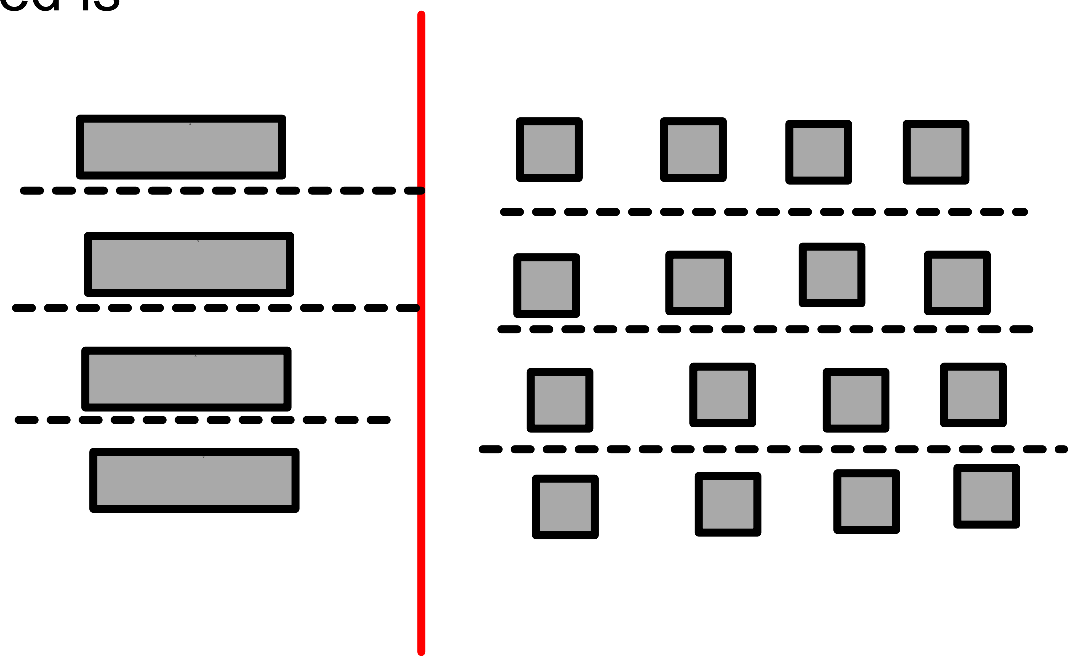
5a)

colored is +

uncolored is -

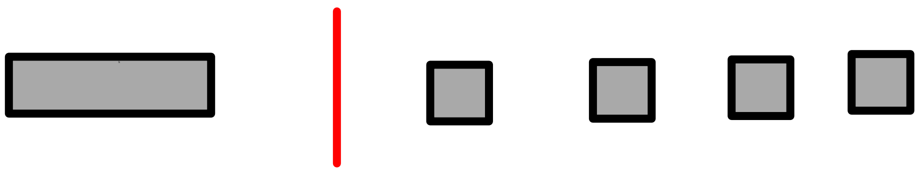


$4s = 16$

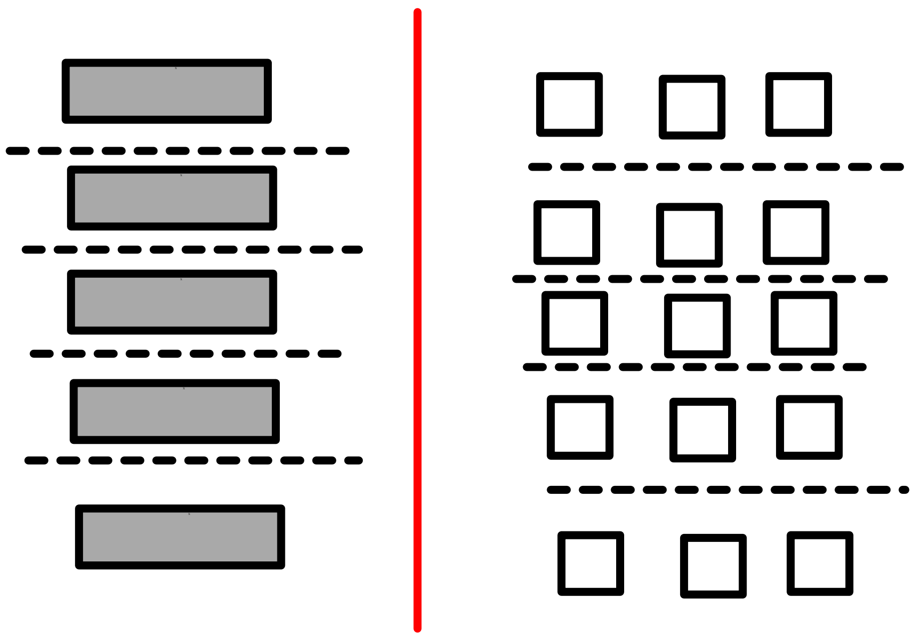


$$\frac{4s}{4} = \frac{16}{4}$$

$s = 4$

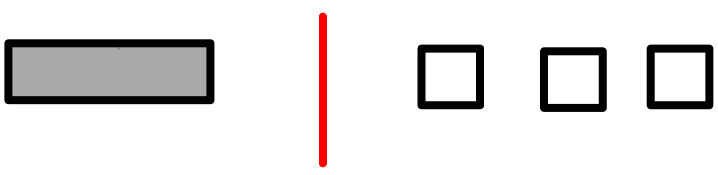


b) $5t = -15$



$$\frac{5t}{5} = \frac{-15}{5}$$

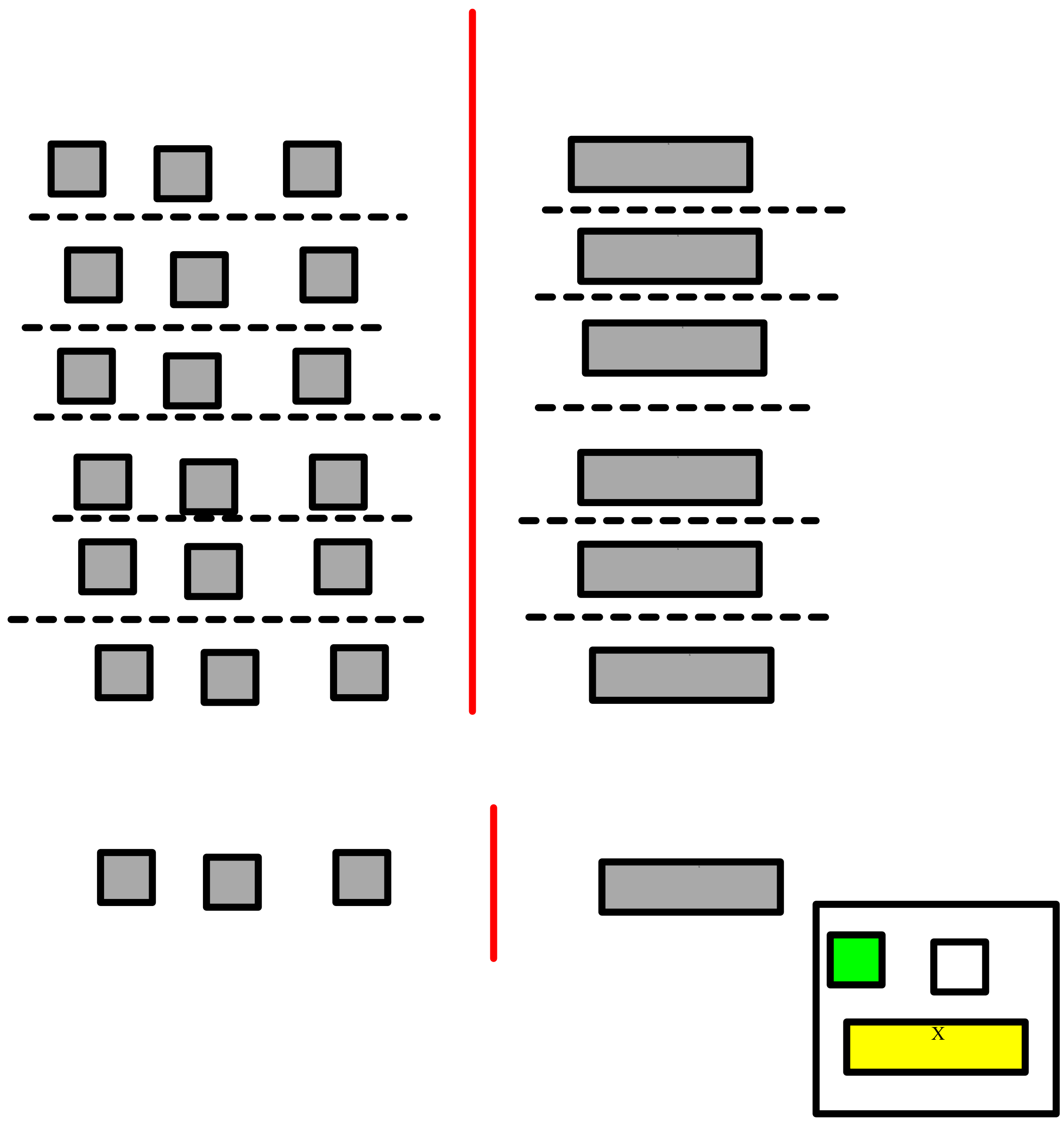
$t = -3$



c) $18 = 6a$

$$\frac{18}{6} = \frac{6a}{6}$$

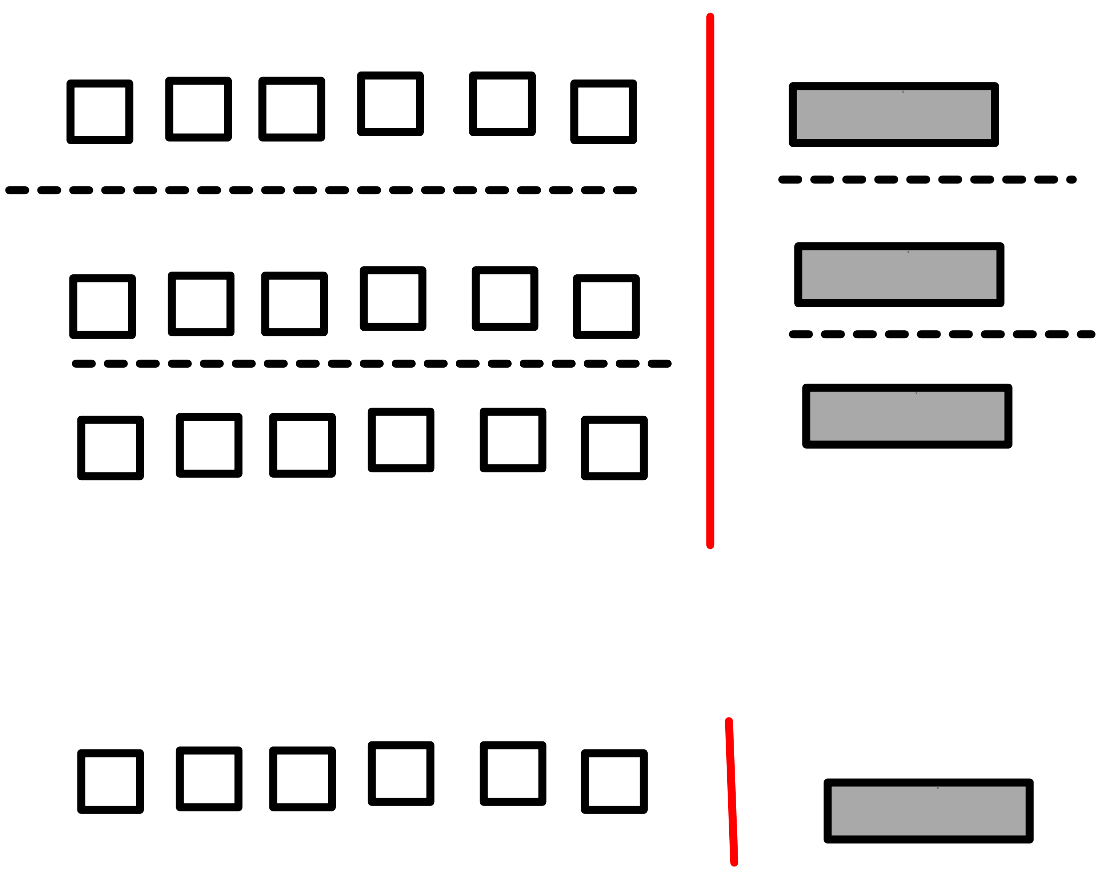
$$3 = a$$



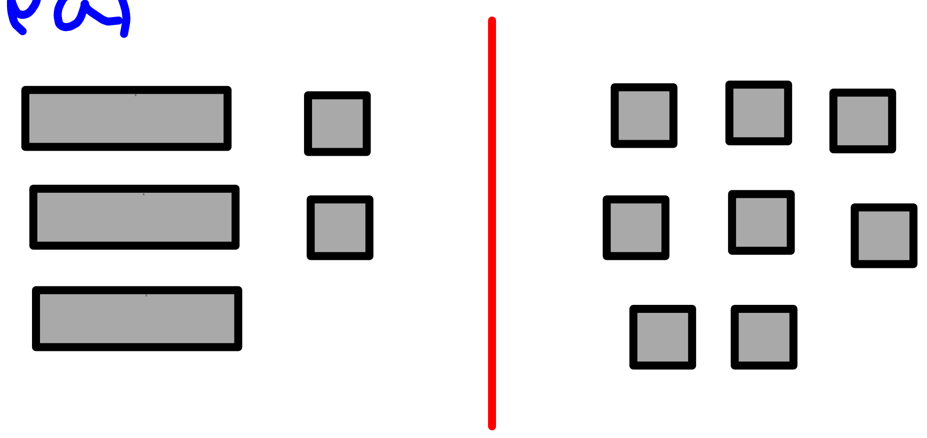
d) $-18 = 3b$

$$\frac{-18}{3} = \frac{3b}{3}$$

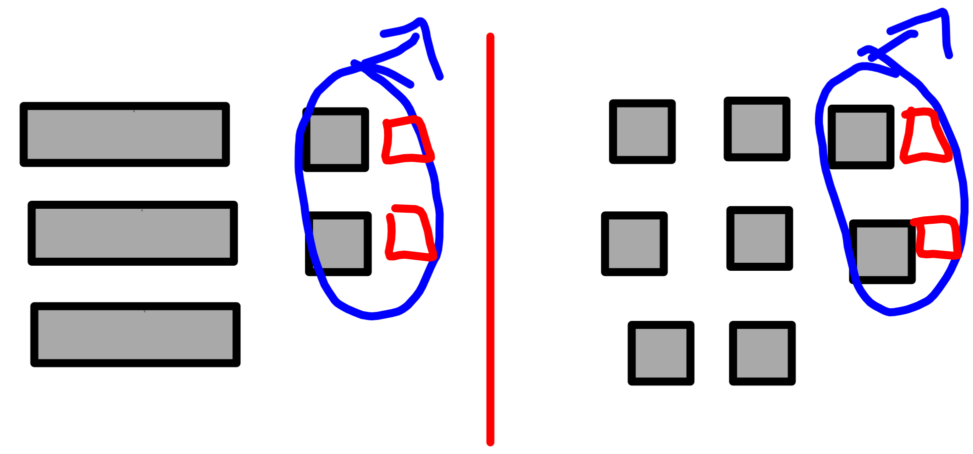
$$-6 = b$$



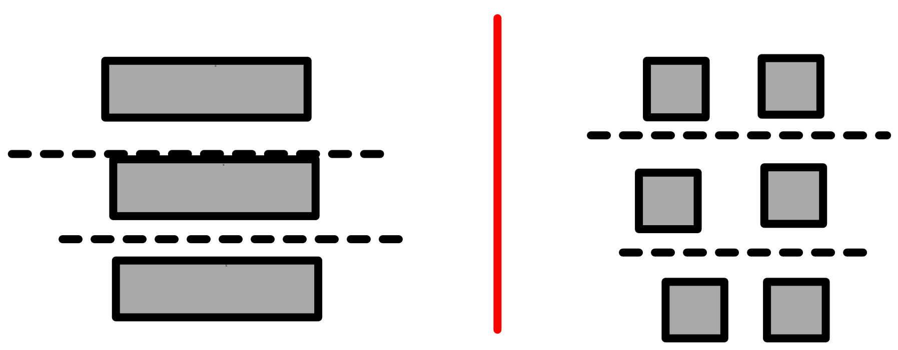
6a)



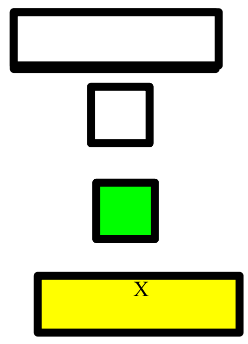
$3x+2=8$



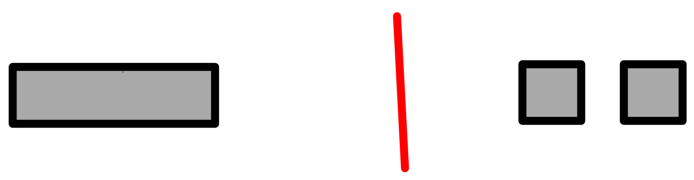
$3x+2-2=8-2$



$3x=6$

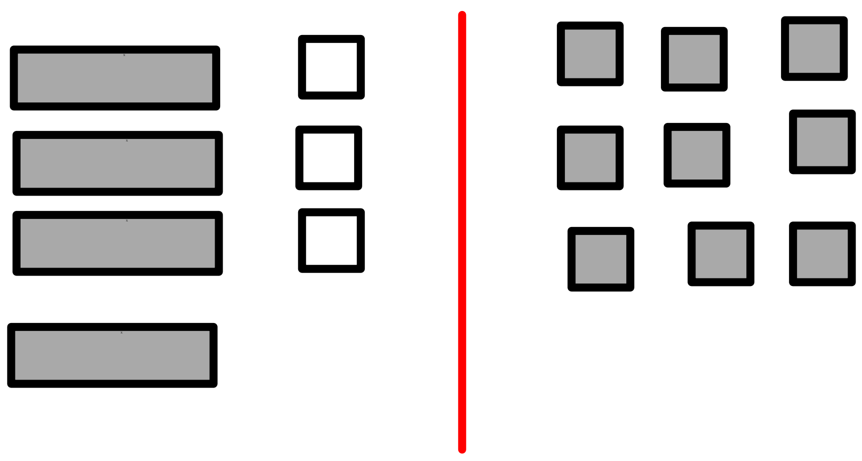


$\frac{3x}{3}=\frac{6}{3}$

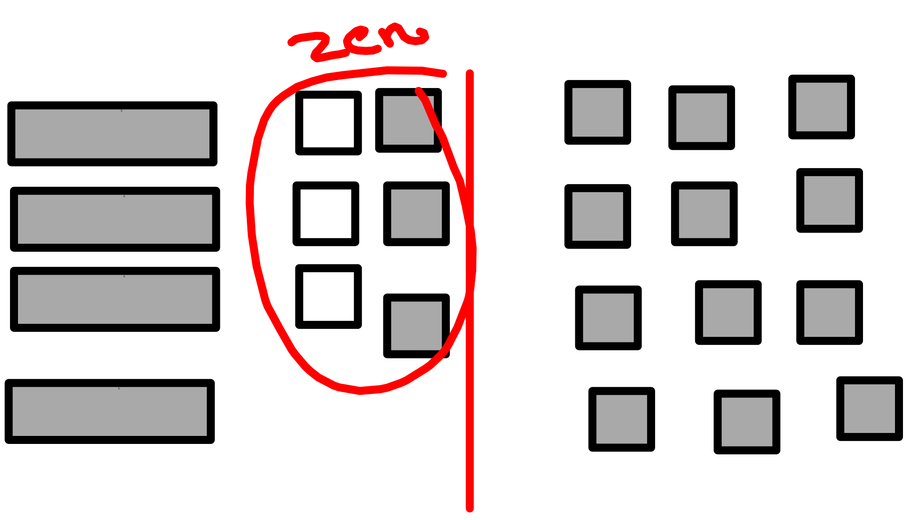


$x=2$

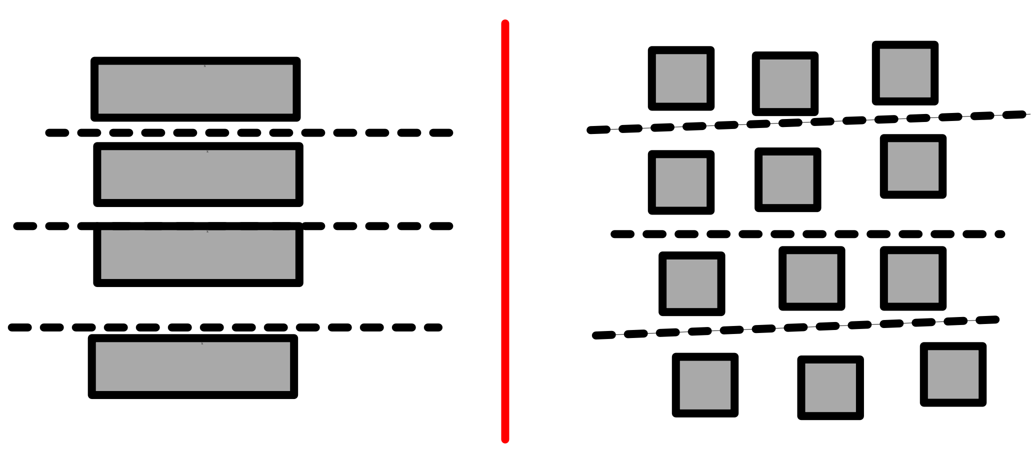
b)



$4s-3=9$

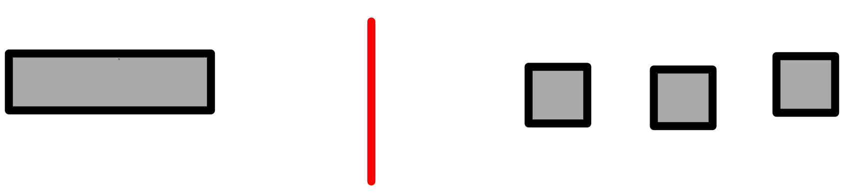


$4s-3+3=9+3$



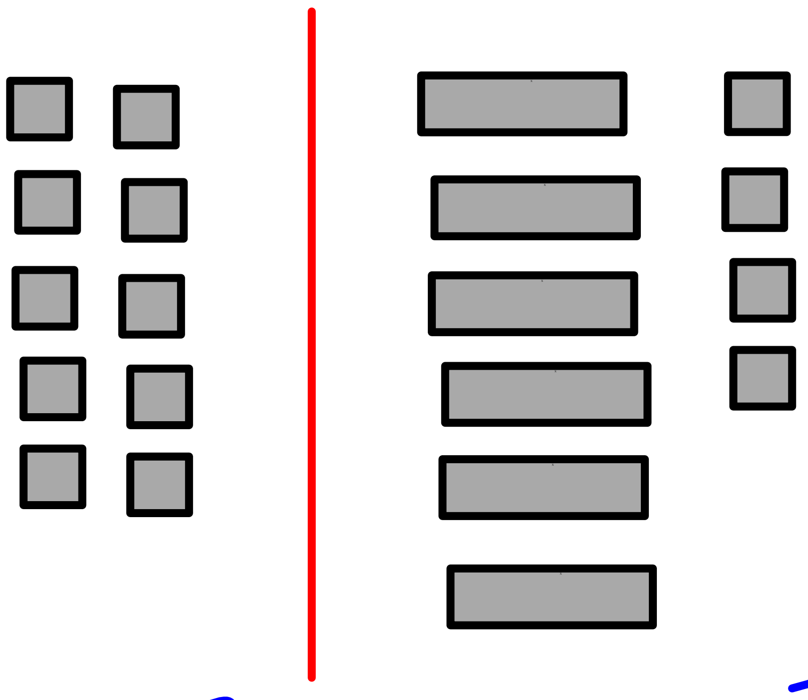
$4s=12$

$\frac{4s}{4}=\frac{12}{4}$



$s=3$

c)



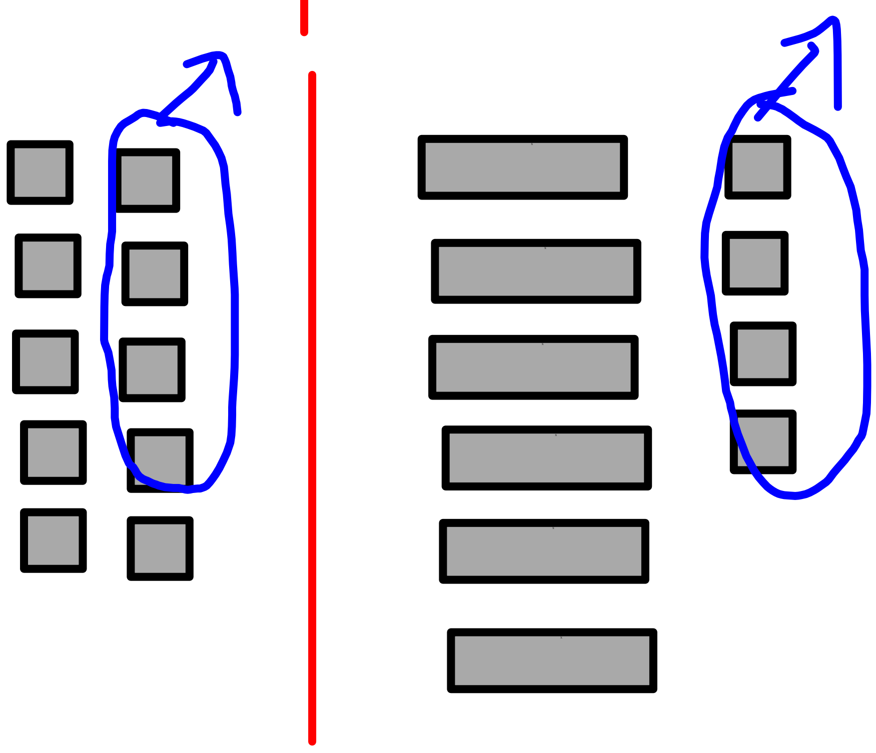
$10 = 6c + 4$

$6c + 4 = 10$

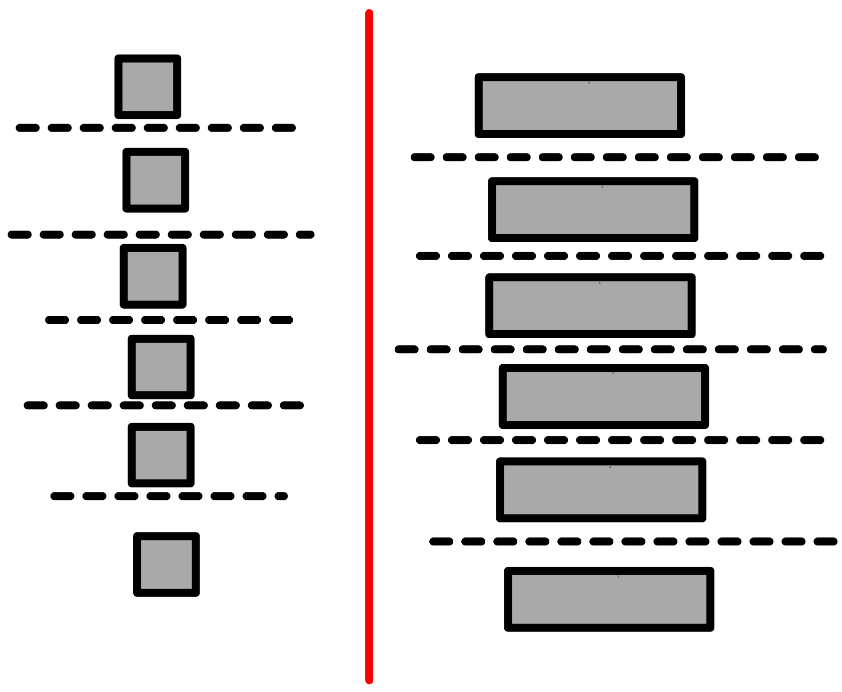
$6c \cancel{+4} - 4 = 10 - 4$

$\frac{6c}{6} = \frac{6}{6}$

$c = 1$

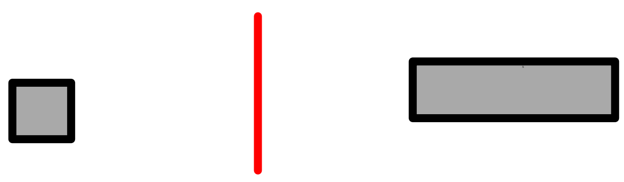


$10 - 4 = 6c + 4 - 4$



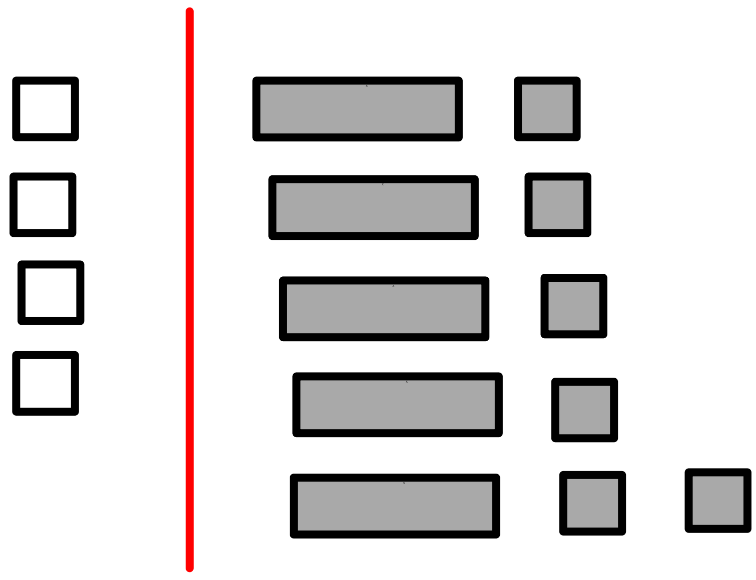
$6 = 6c$

$\frac{6}{6} = \frac{6c}{6}$

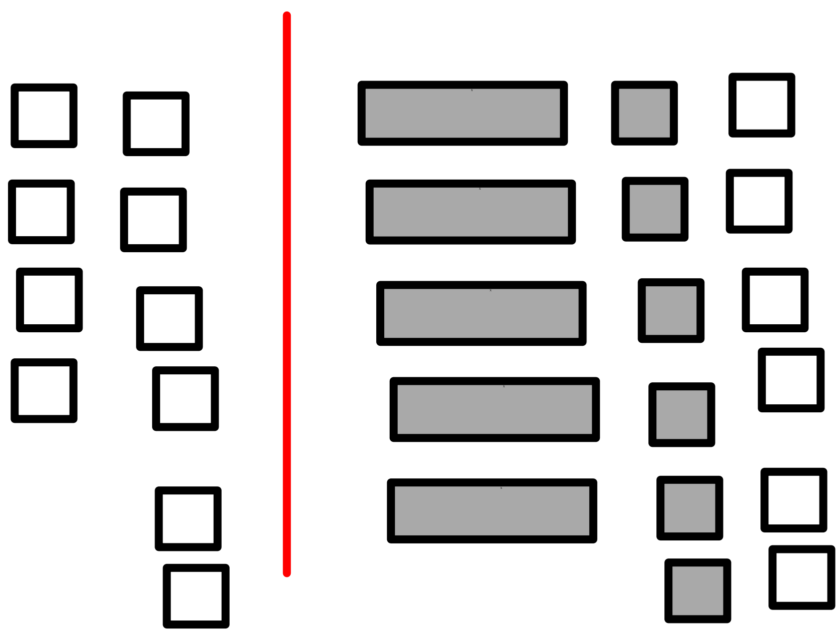


$1 = c$

d)

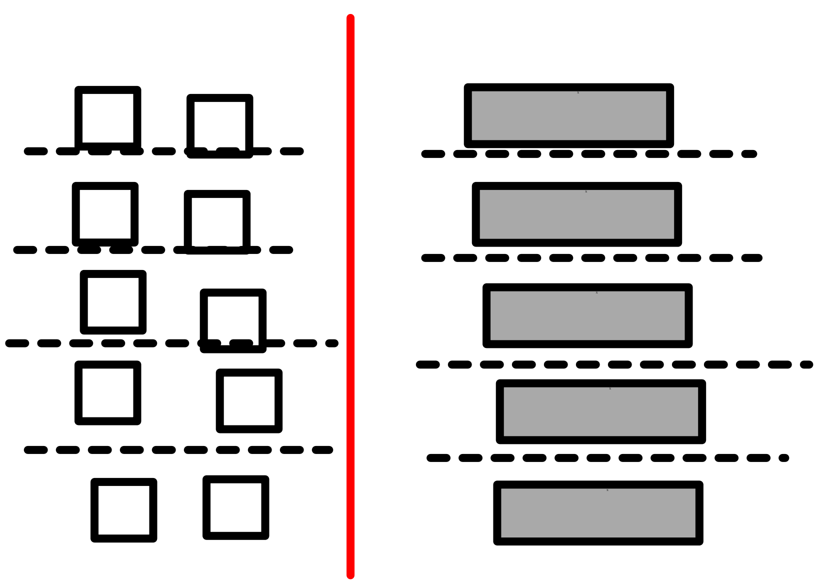


$-4 = 5m + 6$



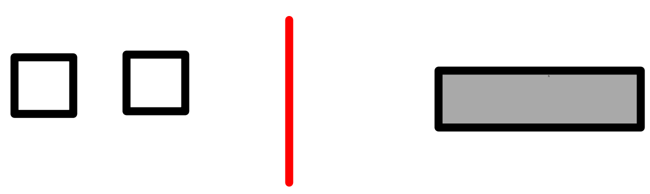
$-4 + (-6) = 5m + 6 + (-6)$

or $[-4 - 6 = 5m + 6 - 6]$



$-10 = 5m$

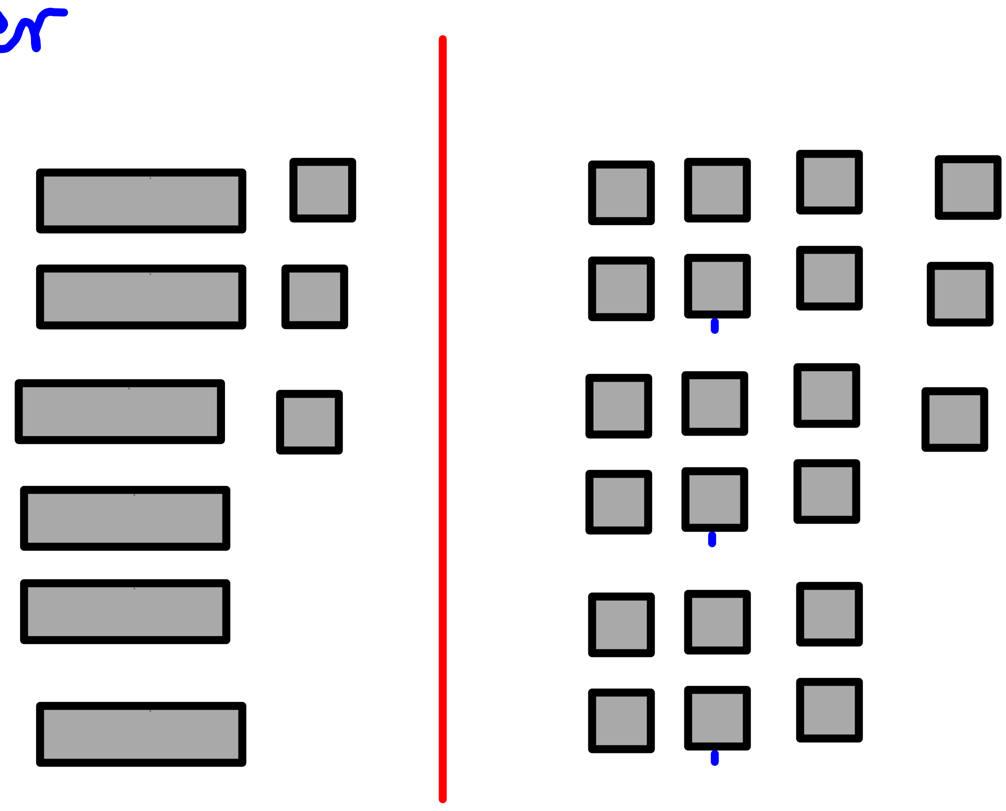
$\frac{-10}{5} = \frac{5m}{5}$



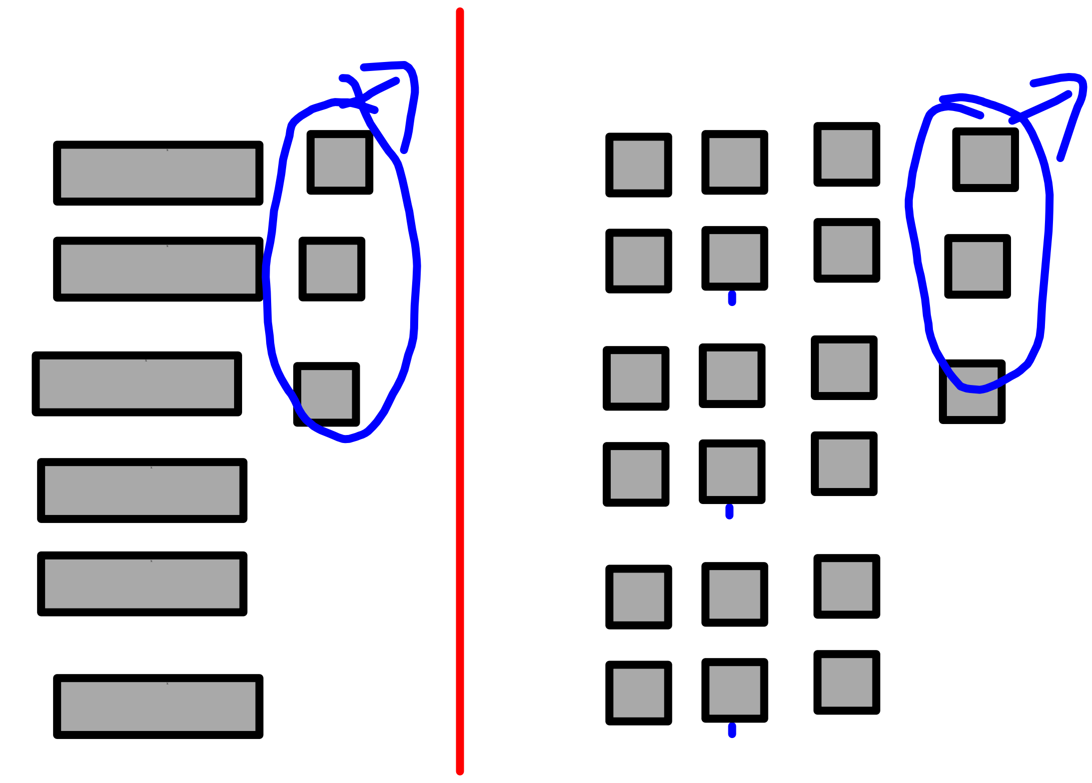
$-2 = m$

7. n = the number

$6n+3=21$

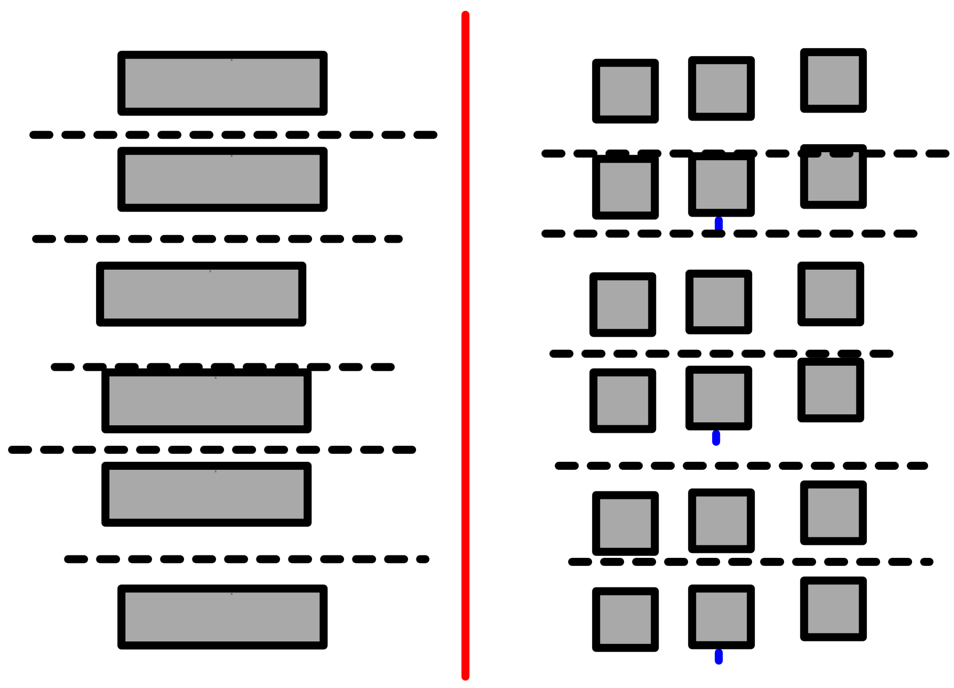


$6n+3-3=21-3$

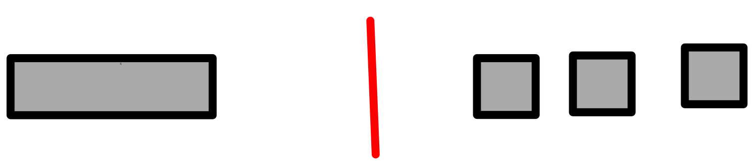


$6n=18$

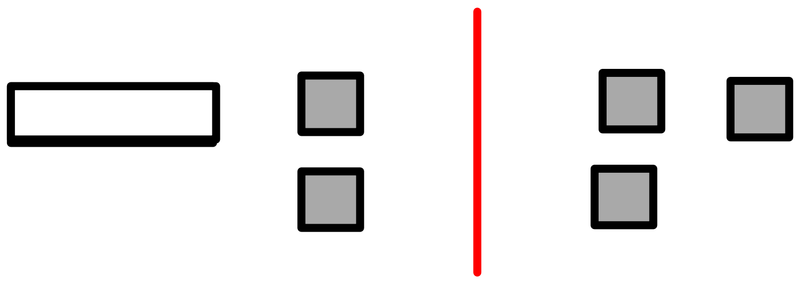
$\frac{6n}{6}=\frac{18}{6}$



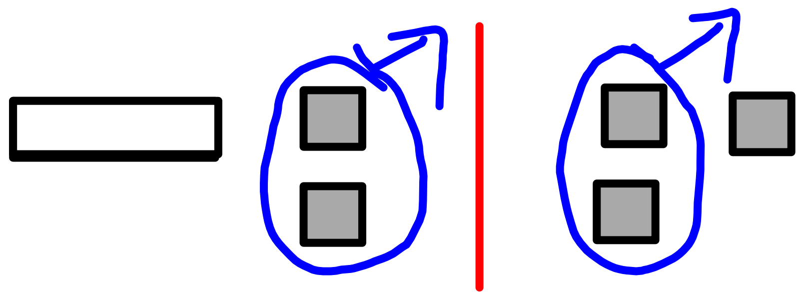
$n=3$



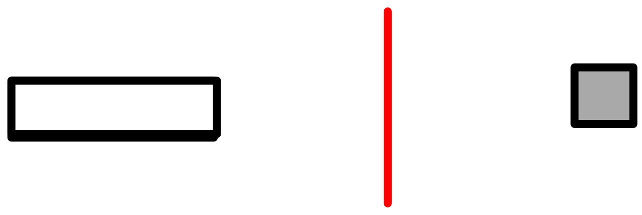
$-x + 2 = 3$



$-x + 2 - 2 = 3 - 2$

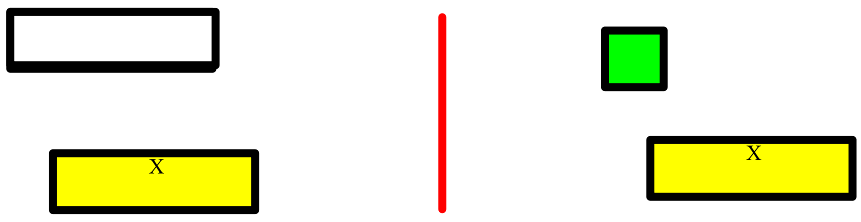


$-x = 1$



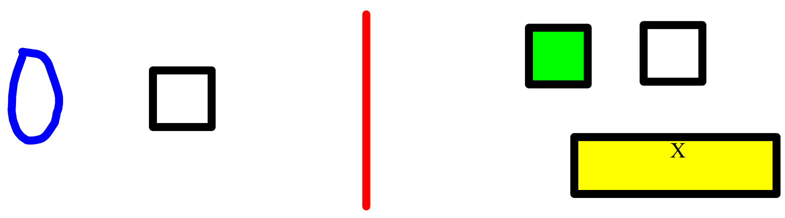
PART OF NOTES TODAY

$-x + x = 1 + x$

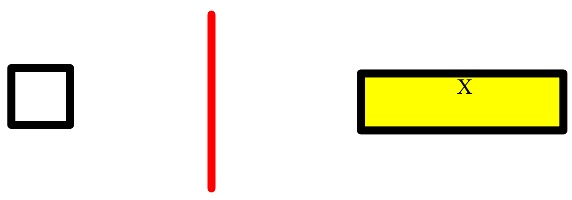


$0 = x + 1$

$0 + -1 = x + 1 + (-1)$

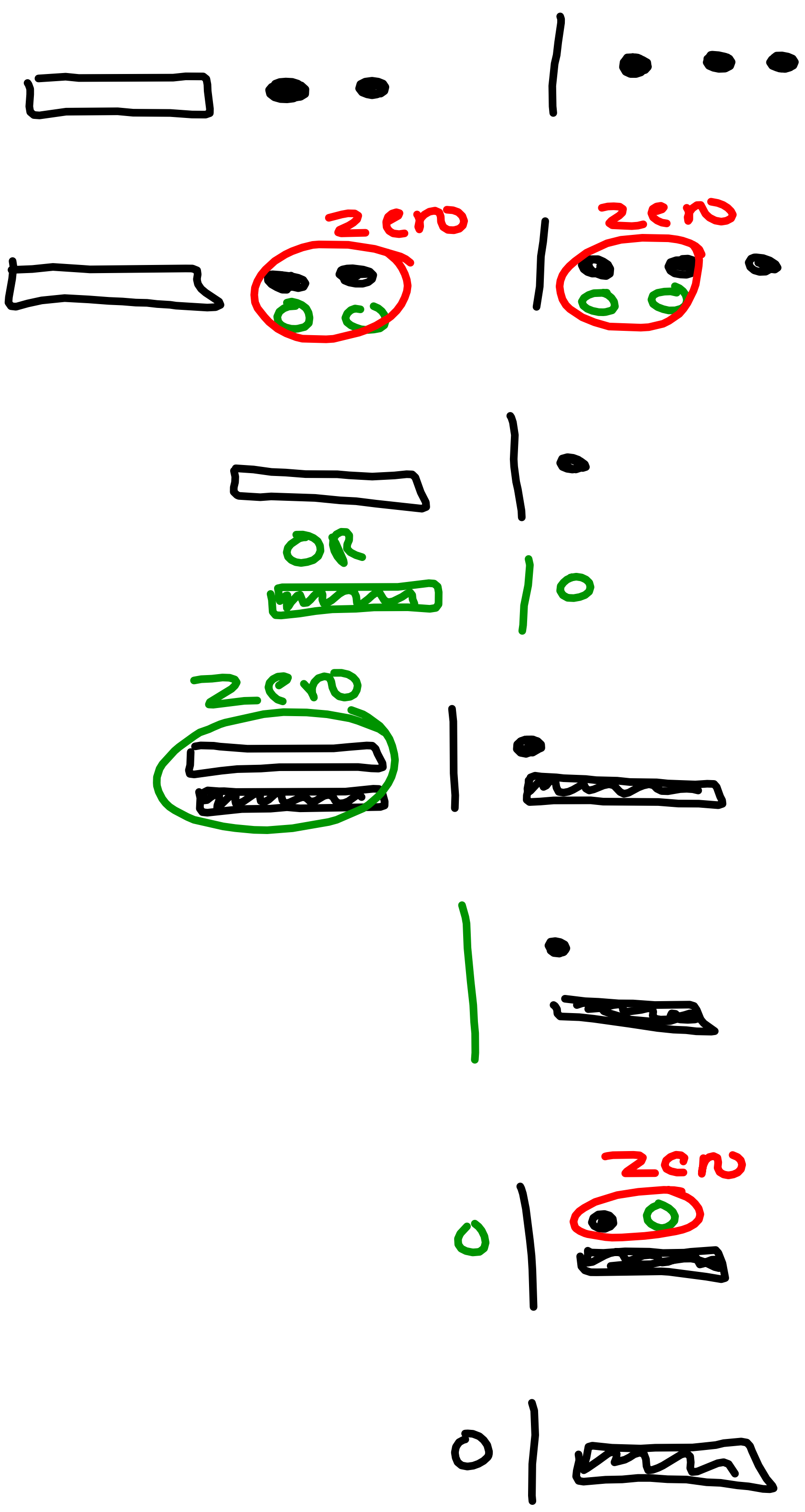


$-1 = x$



$x = -9$

$$-x+2=3$$



$$-x=+1$$

$$-x+x=1+x$$

$$0=1+x$$

$$0-1=1-1+x$$

$$\boxed{-1=x}$$

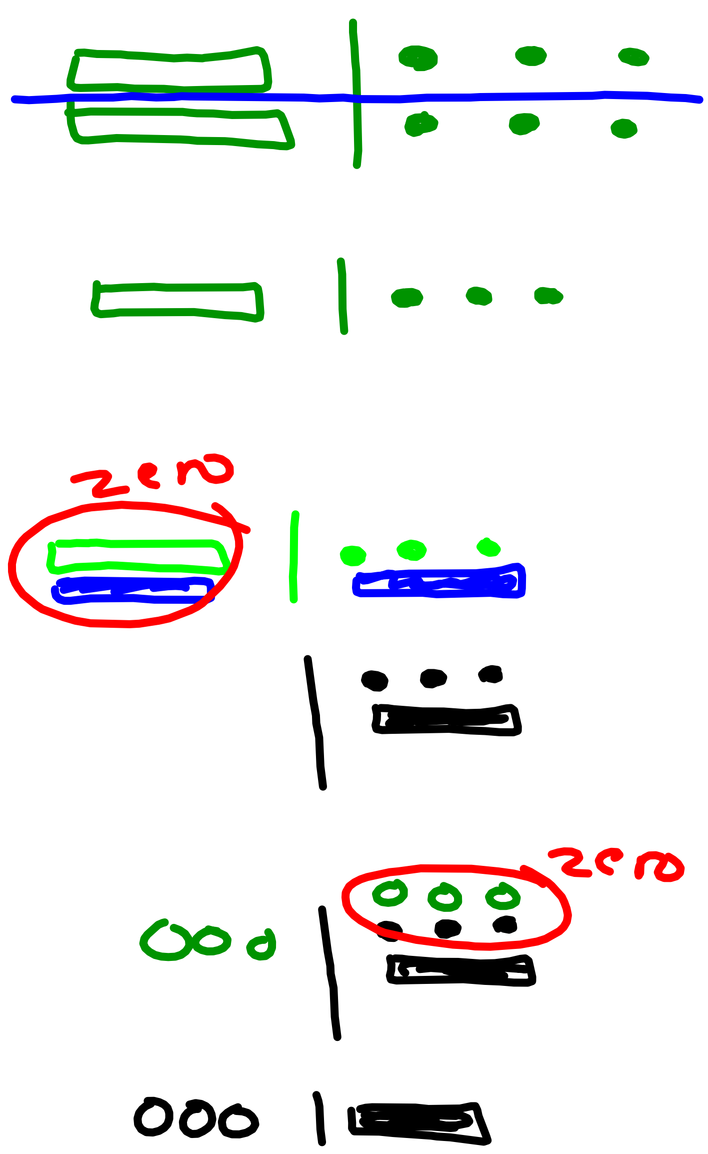
If you get a solution for -x, you can multiply(or divide) both sides by -1 to get the solution for x

Examples:

$-x = 9$	$-x = -26$	$-x = 67$
$x = -9$	$x = 26$	$x = -67$

How to model??? (take it to the other side by adding then isolate again)

$-2x = 6$

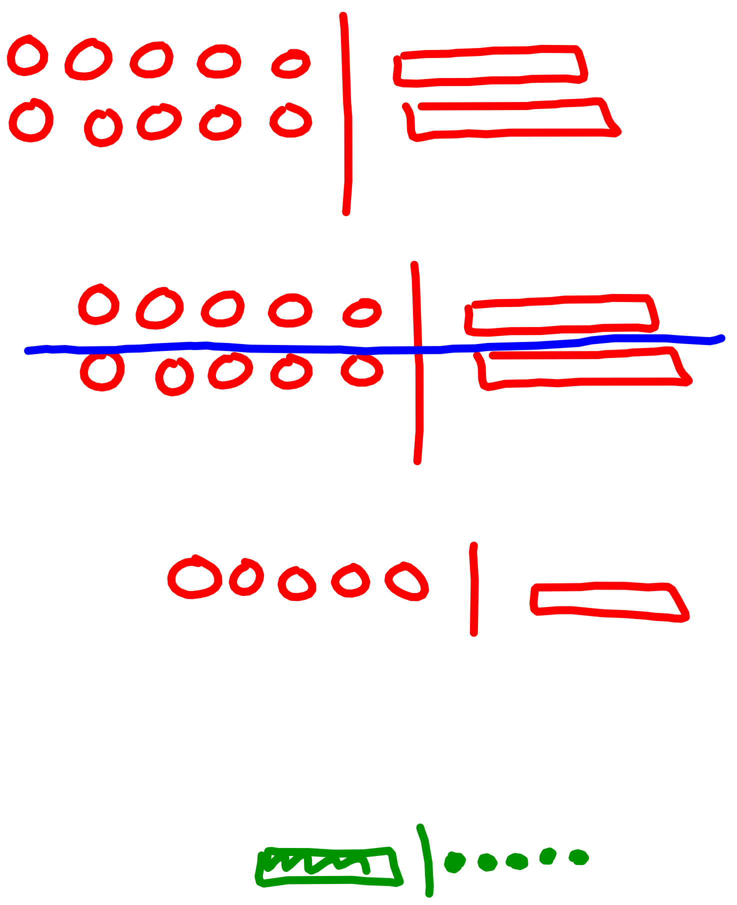


$$-2x = 6$$
$$\div 2 \qquad \div 2$$
$$-x = +3$$
so
$$\boxed{x = -3}$$

~~Model~~ and solve with Algebra

Example

-10 = - 2x



$-x = -5$

so

$\boxed{x = 5}$

Use algebra solve

$-10 = -2x$

$\frac{-10}{-2} = \frac{-2x}{-2}$

$\boxed{5 = x}$

2) $-4x + 1 = 13$ Use Algebra

$-4x \underbrace{+1-1}_{\text{zero}} = \underbrace{13-1}$

$-4x = 12$

$\div(-4) \qquad \div(-4)$

$\boxed{x = -3}$

Class/Homework

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9b 9b(Algebra) a) use Algebra 4x-2=18 → Algebra just use tiles instead of balance scales → model → Algebra

8, #9, #10, #11(a,c), ~~#12~~, #13(a,c), ~~#14~~

$-1x = 10$

$\frac{-1x}{-1} = \frac{10}{-1}$

$x = -10$

$-1x = -20$

$-1x \times -1 = -20 \times -1$

$x = +20$

9) a) $3n + 4 = 22$

let n represt # of cards in Maeve's hand

b) $3n + 4 = 22$

$3n + \cancel{4 - 4} = \underbrace{22 - 4}$

$3n = 18$

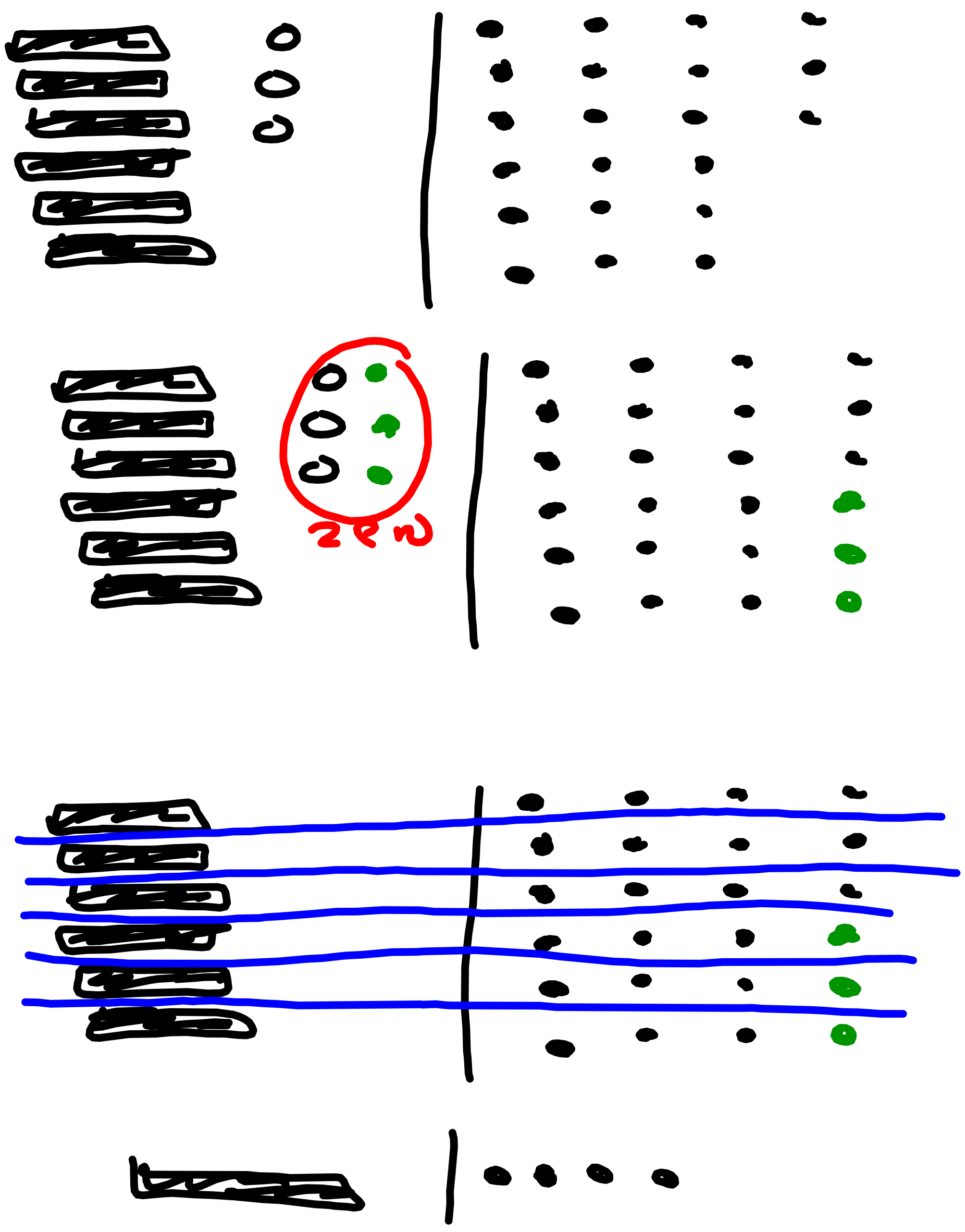
$\div 3 \quad \div 3$

$\boxed{n = 6}$

let $n \equiv$ the number

3 less than six times a number is 21

$$6n - 3 = 21$$



$$6n - 3 = 21$$

$$6n - 3 + 3 = 21 + 3$$

$$6n = 24$$

$$\div 6 \qquad \div 6$$

$$\boxed{n = 4}$$