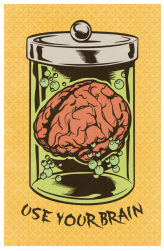
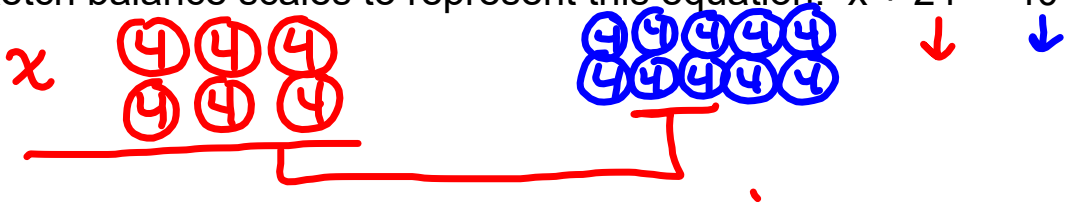
Warm Up Grade 7



1) Suppose the masses of balance scales are only available in multiples of 4 g.

a) Sketch balance scales to represent this equation: x + 24 = 40



b) Solve the equation. Verify the solution (Show your work)

$x + 24 = 40$

$x + 24 \overset{-24}{} = 40 - 24$

$x = 16$

Sheet 13b

a) $n+12=20$

(iv)

b) $20=3n+8$

(i)

c) $22=3n+20$

(iii)

d) $n+8=22$

(i)

2a) $a+2=7$

$a+2-2=7-2$

$a=5$

b) $b+6=11$

$b+6-6=11-6$

$b=5$

c) $10=c+5$

$c+5=10$

$c+5-5=10-5$

$c=5$

If you change to the other side of equal sign, that's fine

d) $15=d+10$

$15-10=d+10-10$

$5=d$

3a) $25 = a + 10$

$25 - 10 = a + 10 - 10$

$15 = a$

b) $b + 6 = 24$

$b + 6 - 6 = 24 - 6$

$b = 18$

c) $30 = c + 20$

$30 - 20 = c + 20 - 20$

$10 = c$

d) $2d + 6 = 18$

$2d + 6 - 6 = 18 - 6$

$2d = 12$

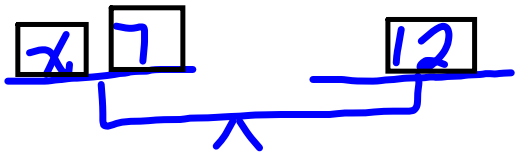
$\frac{2d}{2} = \frac{12}{2}$

$d = 6$

4a) $x+7=12$

$x+7-7=12-7$

$x=5$



b) $n+18=22$

$n+18-18=22-18$

$n=4$

c) $2m=26$

$\frac{2m}{2}=\frac{26}{2}$

$m=13$

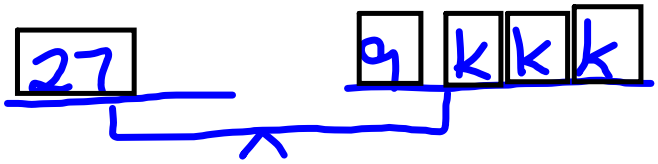
d) $27=9+3k$

$27-9=9+3k-9$

$18=3k$

$\frac{18}{3}=\frac{3k}{3}$

$6=k$



5 n = the number

a) $n+2=12$

$n+2-2=12-2$

$n=10$

b) $n+9=21$

$n+9-9=21-9$

$n=12$

c) $4n=24$

$\frac{4n}{4}=\frac{24}{4}$

$n=6$

n|n|n|n

d) $4+3n=28$

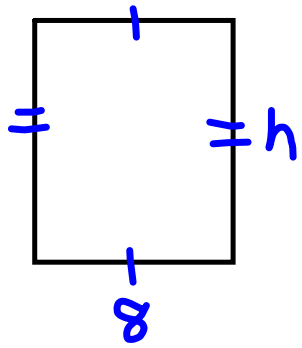
$4+3n-4=28-4$

$3n=24$

$\frac{3n}{3}=\frac{24}{3}$

$n=8$

6.



$Per = s+s+s+s$

$= 8+h+8+h$

$= 2h+16$

$Per = 44$

$2h+16 = 44$

$2h+16-16 = 44-16$

$2h = 28$

$\frac{2h}{2} = \frac{28}{2}$

$h = 14$

28

The height is 14

7. $A = b \times h$

$120 = 15 \times h$

$\frac{120}{15} = \frac{15h}{15}$

$8 = h$

The height is 8cm

Solving Equations with Integers

Review

Adding Integers

To add 2 positive integers, add the numbers and the answer will be positive.

(+5) + (+6) = +11

To add 2 negative integers, add the numbers and the answer will be negative.

(-4) + (-6) = -10

To add a positive and a negative integer, subtract the number and keep the sign of the larger number.

(-10) + (+7) = -3 (+20) + (-5) = +15

Subtracting Integers

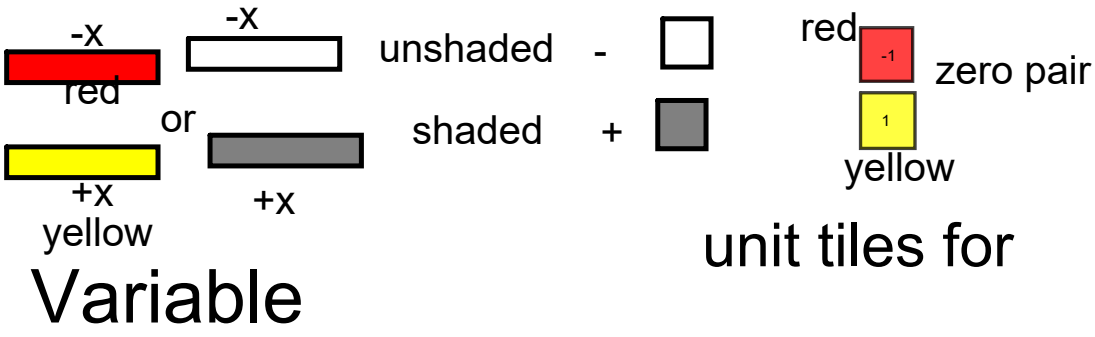
add the opposite

To subtract integers, the first number stays the same, the subtract sign changes to addition and the number after the subtraction sign changes to its opposite.(Then use addition rules)

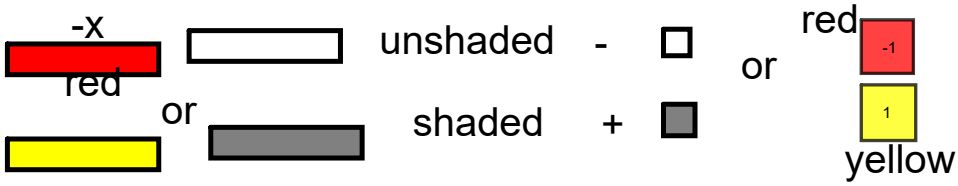
(+7) - (-11) (-3) - (-8)

add opposite add opposite

(+7) + (+11) = +18 (-3) + (+8) = +5



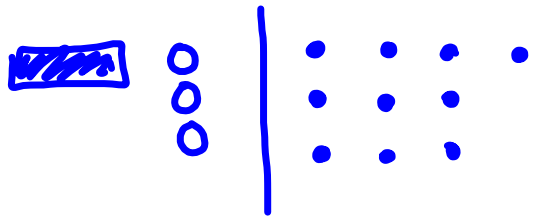
Remember from Section 1.8 solving using algebra tiles pg 38



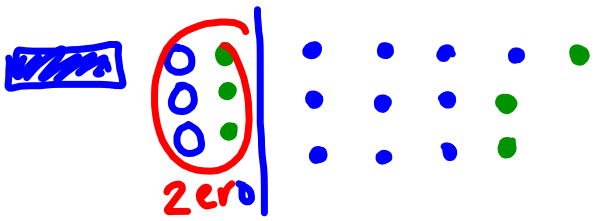
Model with algebra tiles

no sign ⇒ positive

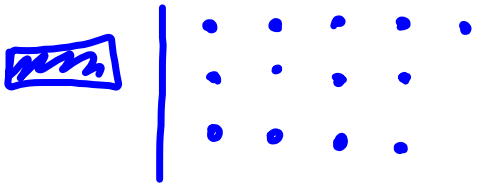
p - 3 = 10



p - 3 = 10



p - 3 + 3 = 10 + 3



p = 13

p = 13

Steven friends came to his birthday party. Seven of his friends left at 8:00. Four friends stayed for the sleep over. Write an equation you can use to find how many of Steven's friends attended his birthday party. Solve the equations. Verify the solution.

Use tiles

let x = # of friend that attended the party

$$x - 7 = 4$$

$$x - 7 + 7 = 4 + 7$$

$$\boxed{x = 11}$$

There were 11 friends at Steven's party.

Equations with Integers

Solve for the variable using algebra and integer rules

Ex 1)

$r + 8 = -2$

$r + 8 - 8 = -2 - 8$

$r = -10$

Ex 2)

$s - 7 = -4$

$s - 7 + 7 = -4 + 7$

$s = +3$

Class / Homework

Page 234

#1 (Sketch Algebra files) a,c,e

#2 (Subtraction)

#3

#4

#5

#6

7

Use integers

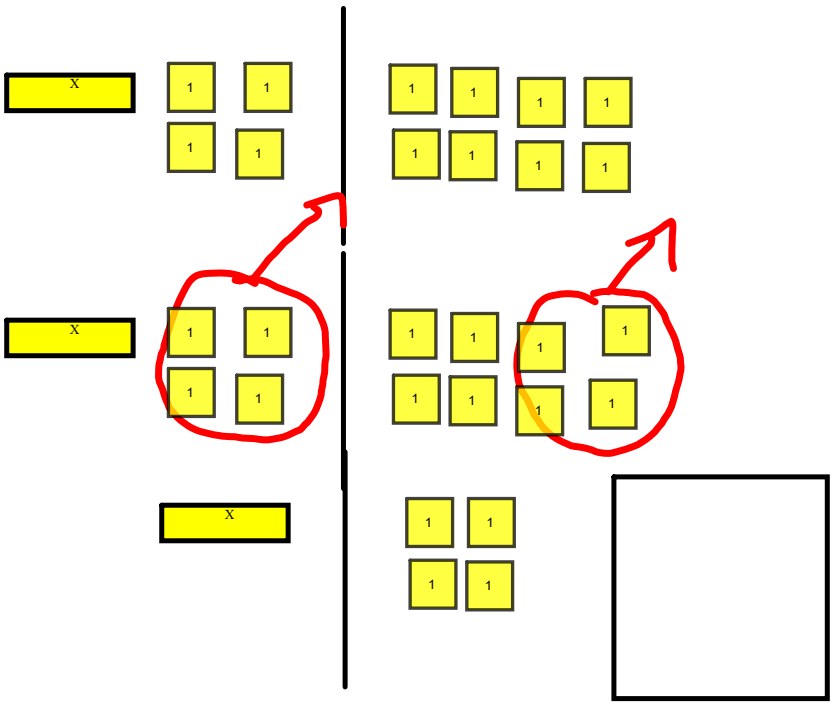
p. 234

1a)

$x+4=8$

$x+4-4=8-4$

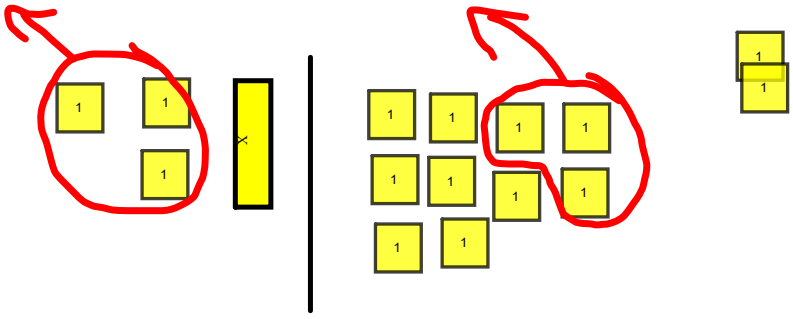
$x=4$



b) $3+x=10$

$3+x-3=10-3$

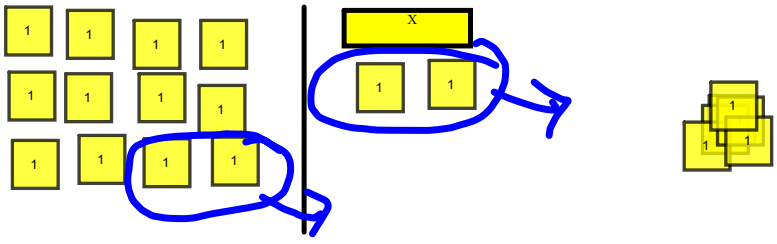
$x=7$



c) $12=x+2$

$12-2=x+2-2$

$10=x$

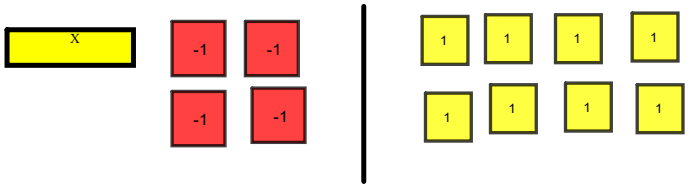


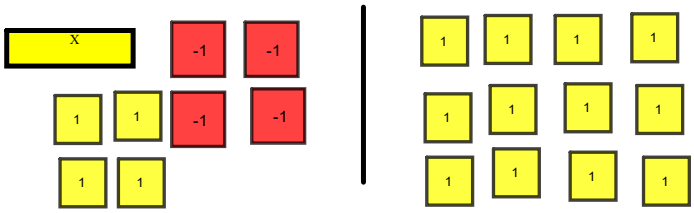
d) $x - 4 = 8$

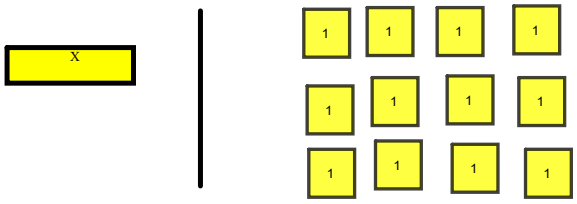
* $x + (-4) = 8$

$x - 4 + 4 = 8 + 4$

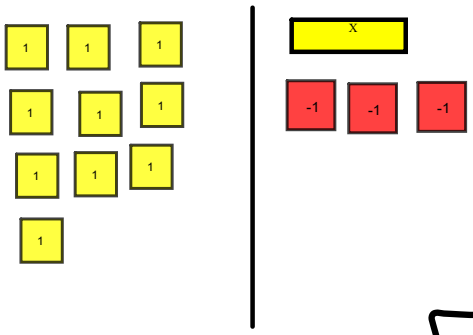
$x = 12$



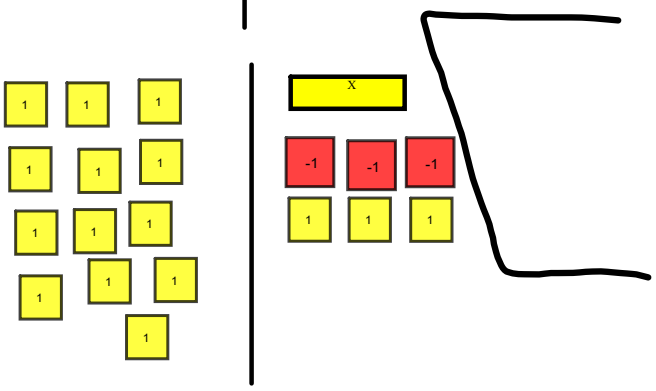




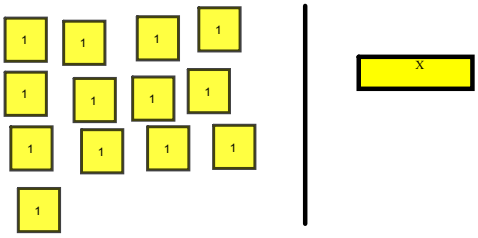
e) $10 = x - 3$



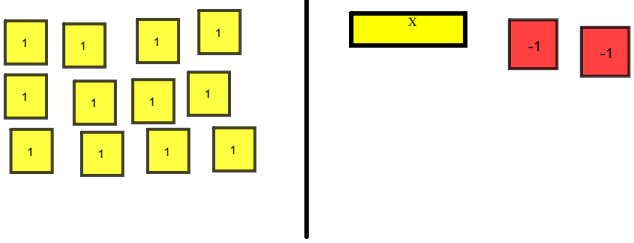
$10 + 3 = x - 3 + 3$



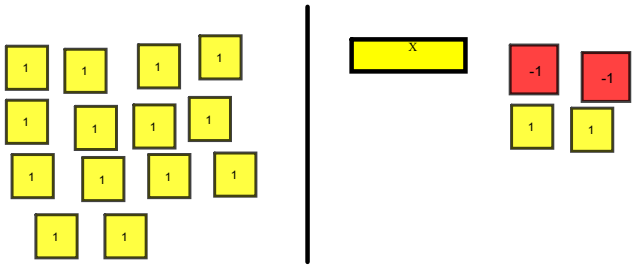
$13 = x$



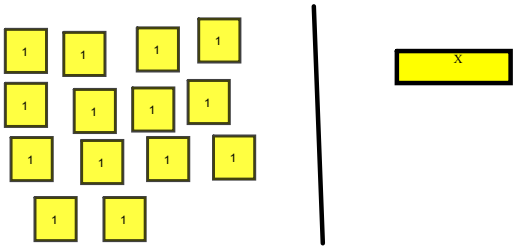
f) $12 = x - 2$



$12 + 2 = x - 2 + 2$



$x = 14$



Inspection

2a) $9 = n - 4$

$13 = n$

b) $x + 6 = 8$

$x =$

c) $2 = p - 5$

$7 = p$

d) $x - 4 = -9$

$-5 + -4 = -9$

e) $-8 = s + 6$

$-14 = s$

f) $x - 5 = -2$

3. $x - 4 = 13$

$x - 4 + 4 = 13 + 4$

$x = 17$

$(-8) - (+3)$

$(-8) + (-3)$

-11

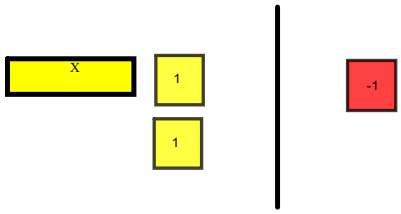
$(+7) - (-2)$

$(+7) + (+2)$

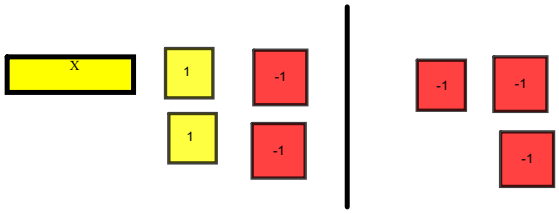
$+9$

Sketch Diagram for Equations with Integers

a) $x + 2 = -1$



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

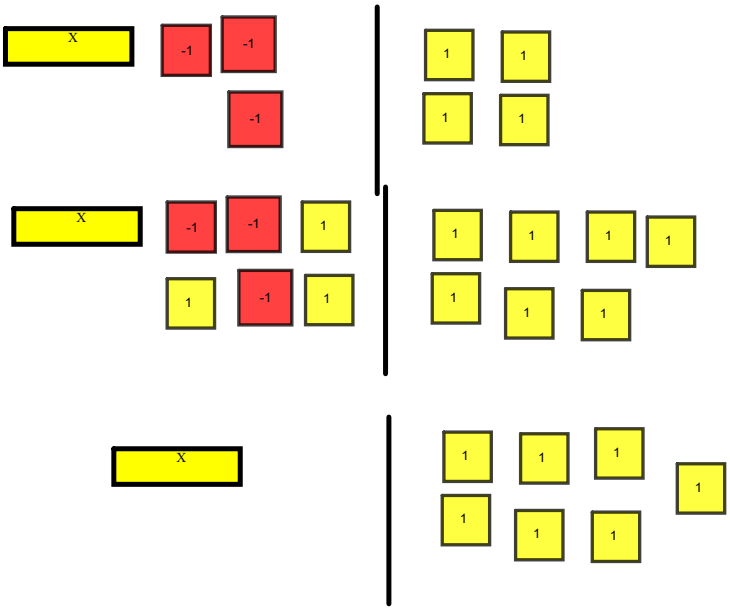


$x = -3$

b) $x - 3 = 4$

$x + (-3) = 4$

$x - 3 + 3 = 4 + 3$



$x = 7$

Homework

pg 234 # 1 - sketch

2 - inspection

3, 4