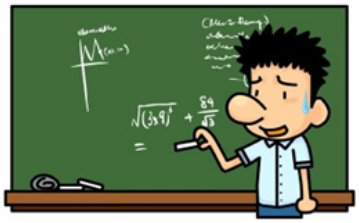
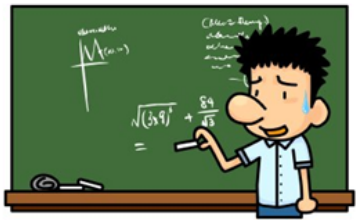


Warm Up Grade 7



1) Write an equation for the following:

a) 7 more than triple a number is 28.

$3n + 7 = 28$

b) Jake has 5 cookies. He has 6 less than Ryan. How many cookies does Ryan have?

$R - 6 = 5$

2) Evaluate the expression:

a) $2x - 10$ for $x = 5$

$2(5) - 10$

$10 - 10$

0

b) $7 + n$ for $n = -2$

$7 + (-2)$

$= (+5)$

1. Write a sentence for each equation.
a) $n + 11 = 15$ **b)** $4n = 24$ **c)** $n/6 = 5$ **d)** $3n + 4 = 19$

a) $n+11=15$
The number of students increased by 11 is 15

b) $4n=24$
4 times the hourly wage is 24

c) $\frac{n}{6}=5$
A number divided by 6 equals 5

d) $3n+4=19$
4 more than triple the number of points is 5

2.

a) Two more than five times a number is 17.

n = the number $2+5n=17$

b) Shawn's age 9 years from now will be 23.

s = Sean's age $s+9=23$

c) The perimeter of a regular hexagon with side length *s* centimetres is 42 cm.

hexagon → 6 sides $6s=42$

d) The cost of three boxes of popcorn at \$3 each, and two drinks at *x* dollars each is \$17.

$3x3+2x=17$

$9+2x=17$

3. Match each equation with the correct sentence.

a)	$n + 3 = 6$	A. A number divided by three equals six.
b)	$3n = 6$	B. The sum of a number and three is six.
c)	$n/3 = 6$	C. The product of a number and three is six.
d)	$3n + 3 = 6$	D. Three more than three times a number is six.

a) B

b) C

c) $\frac{n}{3}=6$ A

d) D

4.

a) Samantha has 16 CDs. She has 4 more CDs than Marlene.
How many CDs does Marlene have?

n = Marlene's CD's n + 4 = 16

b) If Juni doubles the number of comic books he has, he will have 14 comic books. How many comic books does J have?

n = number of comic books 2n = 14

c) Five more than three times a number is 17.
What is the number?

n = the number 5 + 3n = 17
3n + 5 = 17

d) In the game of Yonder, a player scores *x* points for a Pika and 3 points for a Grinner.
Samuel scored 20 points. He had 4 Grinners and 2 Pikas.
How many points is one Pika worth?

x = Pika points
4 x 3 + 2x = 20
12 + 2x = 20

5. 2n + 3 = 15
Two time the goals scored plus 3 is 15.

6. Angelica is thinking of a number. She multiplies it by 5 and then adds 7.
The result is 22. Write an equation to represent this situation.

n = the number 5n + 7 = 22

Warm Up Grade 7

Write an equations and solve the following by inspection

a) The sum of a number and 15 is 21

adding

$n + 15 = 21$

$n + 15 - 15 = 21 - 15$

$n = 6$

b) $2x - 6 = 32$

$2x - 6 + 6 = 32 + 6$

$2x = 38$

$\div 2 \quad \div 2$

$x = 19$

Use mental math.

1. 500 - 297

500 - 300

200

Subtract 3 too many adt'l on

203

2. $\frac{1}{3} + \frac{4}{6}$

$\frac{2}{6} + \frac{4}{6}$

$\frac{6}{6}$

$= 1$

3) 25 x 17 x 4

4 x 25 x 17

100 x 17

1700

4) 0.2 x 43

2 x 43

$= 86$

0.2 x 43

8.6

Homework

pg225

8. The side of regular octagon is 11cm. What is the perimeter

p = perimeter of octagon

$p = 11 \times 8$

$= 88$

9. k = number of friend to get keychain

$24k + 10 = 130$

guess and test

k=4 $24k+10$

$24 \times 4 + 10$

$96 + 10$

106

k=5 $24k + 10$

$24 \times 5 + 10$

$120 + 10$

130

K=5

5 friends each got keychains

10a) $3n = 27$

$n = 9$ (Insp)

b) $2n + 3 = 27$

$n = 12$ (Insp)

c) $2n - 3 = 27$

$2 \times 15 - 3 = 27$

$n = 15$ (Insp)

d) $\frac{n}{3} = 27$

n=99 $\frac{n}{3}$

$\frac{99}{3}$

33

n=90 $\frac{n}{3}$

$\frac{90}{3}$

30

n=81 $\frac{n}{3}$

$\frac{81}{3}$

27

n=81

Sheet Extra Practice!

1a) $5x = 65$

Equation

b) $y + 8$

Expression

c) $3a - 6$

Ex

d) $2 + 3 = 9$

Eq

e) $\frac{p-4}{2}$

Ex

f) $3q - 5 = 19$

Eq

If it has an equal sign, then it is an equation.

a) $d+9=23$

① $d=15$

$d+9$
$15+9$
24

② $d=14$

$d+9$
$14+9$
23

$d=14$

b) $\frac{p}{4}=6$

$p=24$

$\frac{p}{4}$
$\frac{24}{4}=6$

c) $3c-5=16$

$c=6$

$3c-5$
$3\times6-5$
$18-5$
13

$c=7$,

$3c-5$
$3\times7-5$
$21-5$
16

$c=7$

d) $2x+3=17$

$x=8$

$2x+3$
$2\times8+3$
$16+3$
19

$x=7$,

$2x+3$
$2\times7+3$
$14+3$
17

$x=7$

e) $4y=52$

$y=12$

$4y$
4×12
48

$y=13$,

$4y$
4×13
52

$y=13$

f) $2e+7=31$

$e=14$

$2e+7$
$2\times14+7$
$28+7$
35

$e=12$

$2e+7$
$2\times12+7$
$24+7$
31

$e=12$

3a) $5a = 35$
$a = 7$

b) $x + 7 = 13$
$x = 6$

c) $p - 8 = 15$
$p = 23$

d) $2z - 3 = 13$
$z = 8$

e) $3d + 7 = 19$
$d = 4$

f) $4c - 1 = 19$
$c = 5$

4. a) n = hockey cards at beginning
$n - 15 = 37$

$n = 50$, $n - 15$
$50 - 15$
35

$n = 52$, $n - 15$
$52 - 15$
37
$n = 52$

He started with 52 cards

b) d = cost of each DVD
$15d = 255$

$d = 10$, $15d$
15×10
150

$d = 15$, $15d$
15×15
225

$d = 17$, $15d$
15×17
255

She paid $17 for each DVD

c) d = number of friends
$5d = 35$
$d = 7$
7 friends were given candies

5. n = the number

a) $n+6=17$

$n=11$

b) $n-5=23$

$n=28$

c) $3n=18$

$n=6$

d) $\frac{n}{4}=8$

$n=32$

e) $3n+2=17$

$n=5$

f) $2n-5=9$

$n=7$

6. p = number of puzzles for each friend

$8p+9=57$

$p=5$ $8p+9$
$8\times5+9$
$40+9$
49

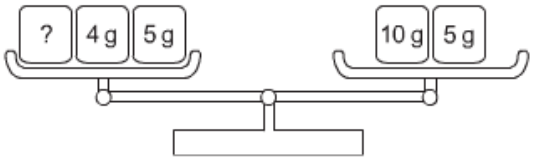
$p=6$, $8p+9$
$8\times6+9$
$48+9$
57
$p=6$

Each friend gets 6 puzzles

BEFORE Get Started

Review the balance scales at the top of page 226 of the Student Book.

Show a balance scales with these masses:



Ask:

- What happens if I remove the 5-g mass from the left pan? (*The balance tips to the right.*) Why? (*Because the mass in the right pan is greater than the mass in the left pan.*)
- What happens if, instead, I remove a 5-g mass from each pan? (*The balance does not move.*) Why? (*Because you removed the same mass from each pan to keep the balance.*)
- What does this mean? (*The masses in the two pans are equal. The unknown mass plus the 4-g mass are balanced by the 10-g mass.*)

Balance Model

MUST keep the scales BALANCED (which means equal)

Write an equation for each scale then solve

a) 7 x 2 | 8 + 2 + x

14 | 10 + x

$10+x=14$

$-10 \quad -10$

$x=4$

in the scale what do I have to do to get the variable all by itself

b) 4 + 3 - 9 | 6 - 4 - k

-2 | 2 - k

$2-k=-2$

c) 18 ÷ 3 | m +m +m

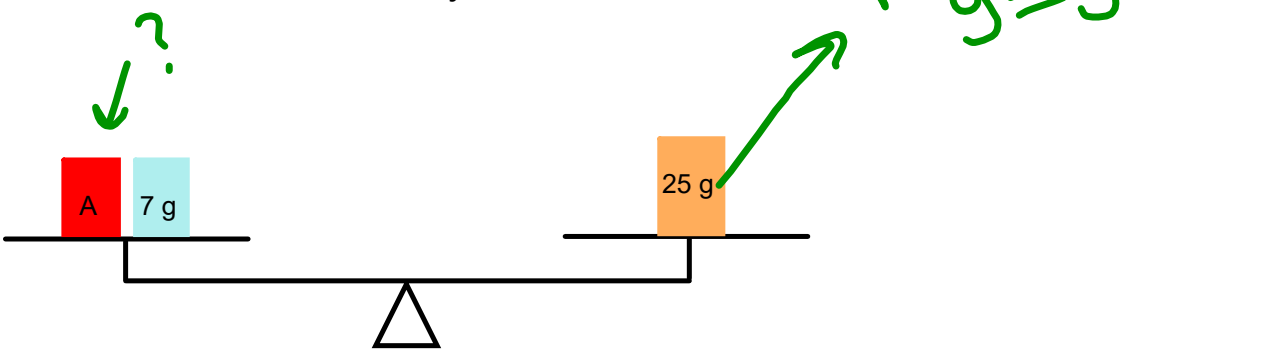
6 | 3m

$3m=6$

$\div 3 \quad \div 3$

$m=2$

Here is a balance-scales model.
Mass A is an unknown mass.
Find the mass of A. Verify the solution.

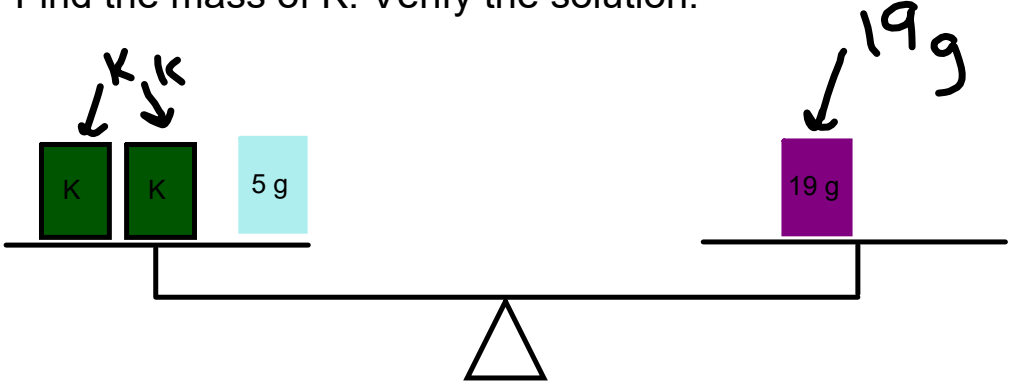


$A + 7 = 25$

$A + 7 - 7 = 25 - 7$

$A = 18$

Here is a balance-scales model.
Mass K is an unknown mass.
Find the mass of K. Verify the solution.



$2k + 5 = 19$

$2k + 5 - 5 = 19 - 5$

$2k = 14$

$\div 2 \qquad \div 2$

$k = 7$

Solving equations requires that the balance of the equation is maintained so that the expressions on either side of the equal sign continue to represent the same quantity.

To KEEP balance and equality:

- We can add the same quantity (mass) to each side.

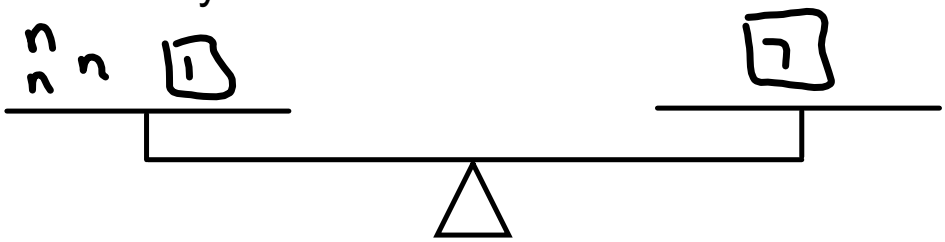
- We can subtract the same quantity (mass) to each side.

use arrow pointing away for balances

- We can divide each side into the same number of equal groups.

Sketch balance scales to represent the equation.
Solve the equation. Verify the solution.

$3n + 1 = 7$



$3n + 1 = 7$ (−1 −1)

$3n = 6$ (÷3 ÷3)

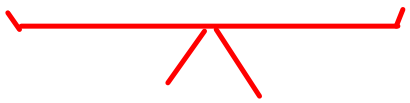
$n = 2$

Draw a balance and solve:

show work using algebra

$a+6=24$

Do we really need to how work using balance? No Just remember what you do to one side you must do to the other.



$a + 6 = 24$ (−6 −6)

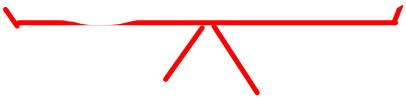
$a = 18$

Ex 2)

$2b = 16$

$\div 2 \quad \div 2$

$b = 8$



Class/Homework

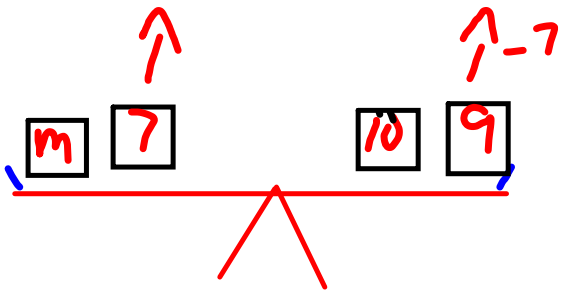
Sheet Extra Practice 2

#1 -Sketch and solve part i to iv

Solve part v to viii

#2 , #3, #4, #5

Solve by either drawing or showing algebraic steps



Attachments

Extra Practice 2 Solving Equations by balancing pdf.pdf