- **Copy** the outcome in your scribbler.

- PR4 – I can demonstrate and explain the meaning of preservation of equality concretely, pictorially and symbolically.

Copie l'objectif dans ton cahier.

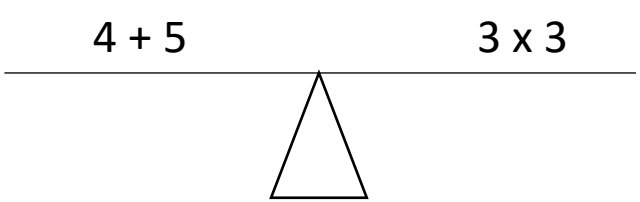
PR4 – Je peux démontrer et expliquer la signification de maintien de l'égalité, de façon concrète, imagée et symbolique.

Watch the following video. Stop at 3:25.

https://www.youtube.com/watch?v=Xbvocj1kp3g

You have used balance scales in math for many years to represent equations. You know that both sides of an equal sign must balance just like a balance scale in order to maintain equality. Copy the examples below in your scribbler.

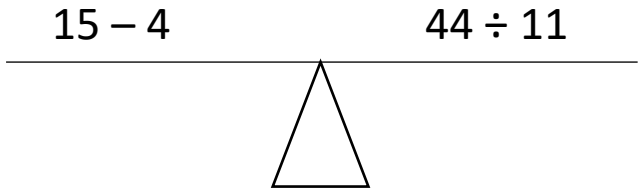
Tu utilises les balances en mathématiques depuis longtemps pour representer les équations. Tu sais que les deux côtés d'un signe d'égalité ont besoin de se balancer pareil comme une balance pour maintenir l'égalité. Copie les exemples ci-dessous dans ton cahier.



4 + 5 = 9

3 x 3 = 9

So/Alors 4 + 5 = 3 x 3



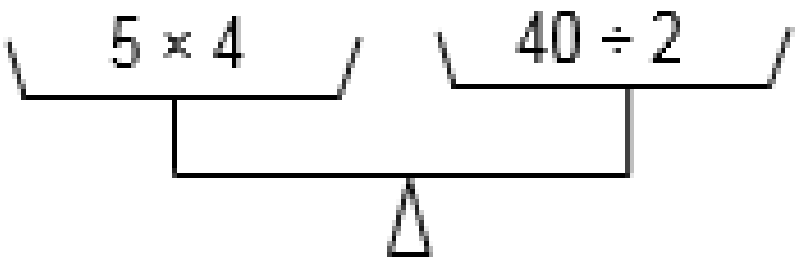
15 – 4 = 11

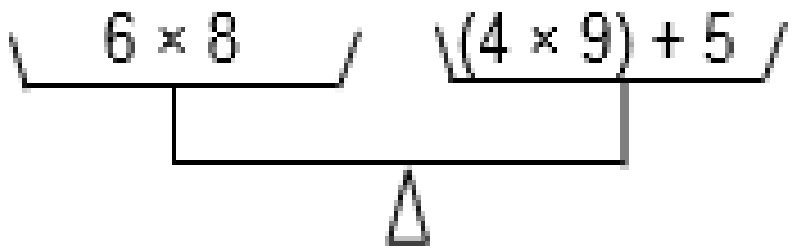
44 ÷ 11 = 4

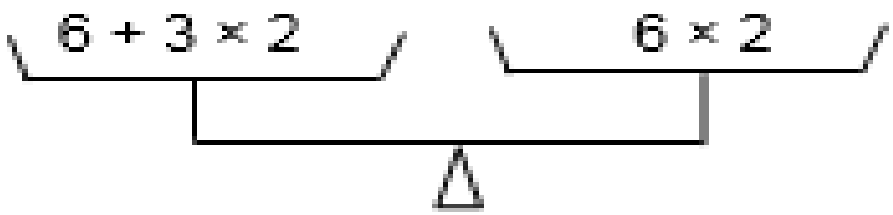
So/Alors 15 – 4 ≠ 44 ÷ 11

Determine if each scale is balanced. **Explain** how you know. (**Copy** the scales in your scribbler too.)

Vérifie si chaque balance est équilibrée. **Explique** comment tu sais. (**Copie** les balances dans ton cahier aussi.)

1. 

2. 

3. 

To see more examples and review commutative property, **read** page 34.

Pour voir d'autres exemples et réviser la commutativité, **lis** page 34.

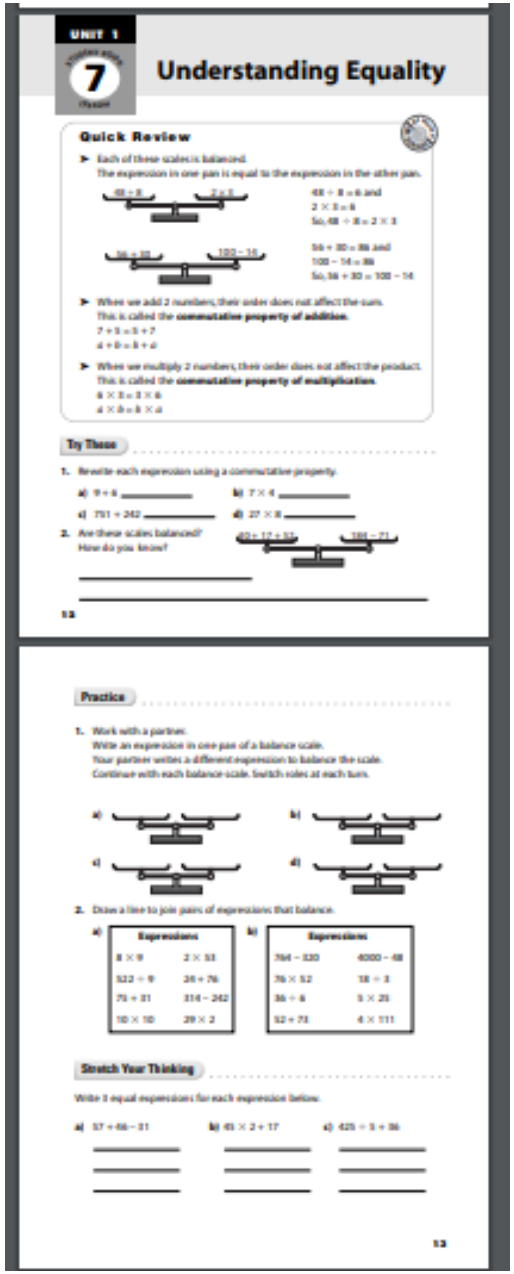
- To get a better understanding of Commutative Property, go to this website. Read as you scroll down. Look at the practice questions. Study the solutions. Finally, do the practice questions. Take notes to show that you completed this task.

- www.splashlearn.com math-vocabulary addition commutative property

- Pour mieux comprendre la propriété commutative, rendez-vous sur ce site. Lisez en faisant défiler vers le bas. Regardez les questions de pratique. Étudiez les solutions. Enfin, faites les questions de pratique. Prenez des notes pour montrer que vous avez terminé cette tâche.

INSPECTION!

- **Worksheet 1: Lesson 7: Understanding Equality**



UNIT 1

7

Understanding Equality

Quick Review

- Each of these scales is balanced.
  The expression in one pan is equal to the expression in the other pan.

$48 \div 8 = 6$ and
$2 \times 3 = 6$
So, $48 \div 8 = 2 \times 3$

$56 + 30 = 86$ and
$100 - 14 = 86$
So, $56 + 30 = 100 - 14$

- When we add 2 numbers, their order does not affect the sum.
  This is called the **commutative property of addition**.
  $7 + 5 = 5 + 7$
  $a + b = b + a$
- When we multiply 2 numbers, their order does not affect the product.
  This is called the **commutative property of multiplication**.
  $6 \times 3 = 3 \times 6$
  $d \times b = b \times d$

Try These

1. Rewrite each expression using a commutative property.
   a) $9 + 6$ _____ b) 7×4 _____
   c) $751 + 242$ _____ d) 27×8 _____
2. Are these scales balanced?
   How do you know?

_____

_____

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Practice

1. Work with a partner.
   Write an expression in one pan of a balance scale.
   Your partner writes a different expression to balance the scale.
   Continue with each balance scale. Switch roles at each turn.

a)

b)

c)

d)

2. Draw a line to join pairs of expressions that balance.

a)

Expressions	
8×9	2×53
$522 \div 9$	$26 + 76$
$75 + 31$	$314 - 242$
10×10	29×2

b)

Expressions	
$764 - 320$	$4000 - 68$
76×52	$18 \div 3$
$36 \div 6$	5×25
$52 + 73$	4×111

Stretch Your Thinking

Write 3 equal expressions for each expression below.

a) $57 + 66 - 31$ b) $45 \times 2 + 17$ c) $425 \div 5 + 36$

_____ _____ _____

_____ _____ _____

_____ _____ _____

13

- Journal Question PR4 #1

- Go back to the following video. Start where you left off at 3:25 and watch the rest.

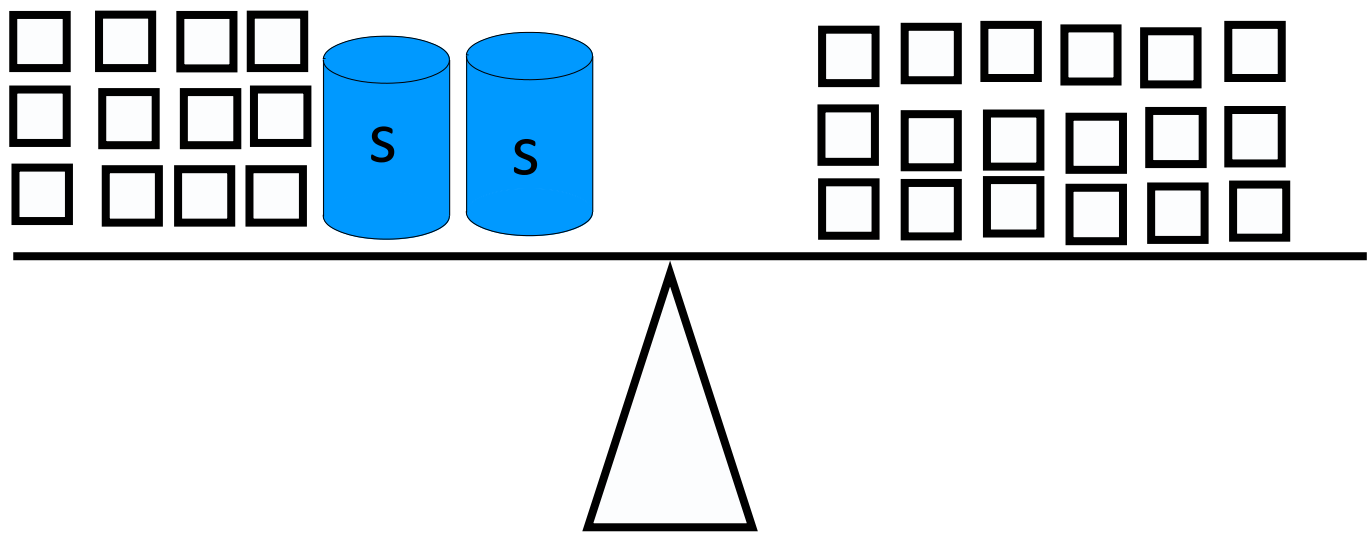
- https://www.youtube.com/watch?v=Xbvocj1kp3g

Read the Connect section on pages 37 and 38. **Copy** the definition for preservation of equality and then the example at the end of the section to show what equivalent form of the equation means.

Lis la section Découvre aux pages 37 et 38. **Copie** la définition pour le maintien de l'égalité et l'exemple à la fin de la section pour démontrer la signification d'une forme équivalente d'une équation.

Example of model for 12 + 2s = 18

Exemple du modèle pour 12 + 2s = 18



Use a balance scale to model the following equations. **Draw** them in your scribbler.

Utilise une balance pour modéliser les deux équations suivantes. **Dessine**-les dans ton cahier.

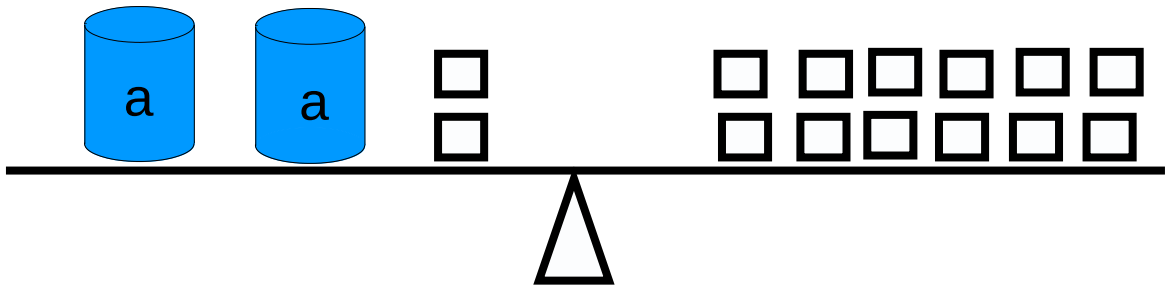
$17 = 5b - 3$

$3p = 18 \div 2$

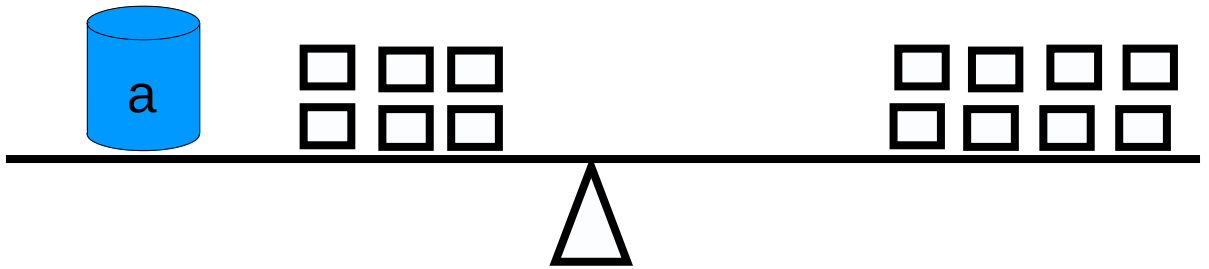
Write an equation for each of the balance scales below. **Copy** the scales in your scribbler too.

Écris une équation pour chaque balance ci-dessous. **Copie** les balances dans ton cahier aussi.

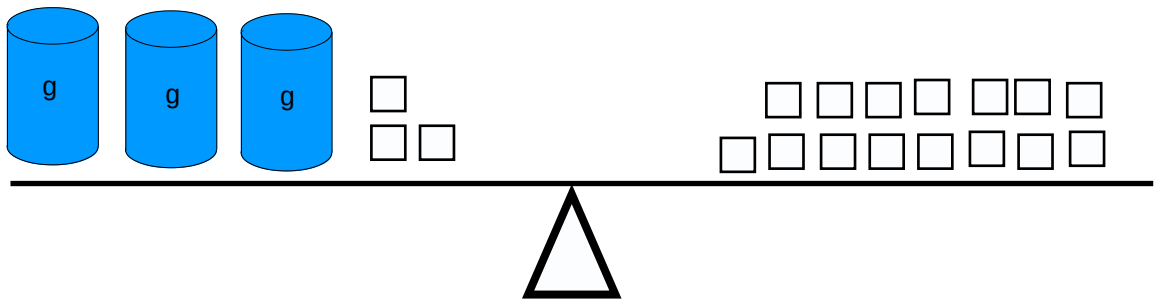
1.



2.



3.



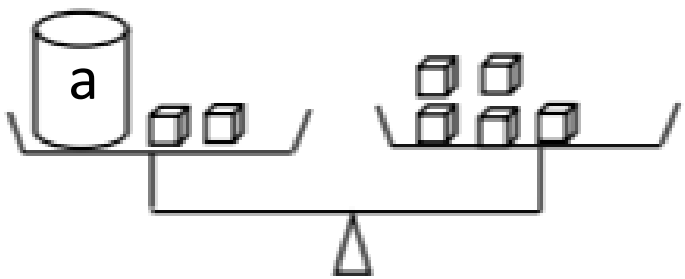
Determine whether the following forms of pairs of equations are equivalent.
Complete in your scribbler.

Déterminer si les formes des paires d'équations suivantes sont équivalentes.
Complète dans ton cahier.

1. $15 - x = 4$ and/et $17 - x = 6$

2. $4t = 8$ and/et $4t + 2 = 10$

Work in pairs. **Complete** in your scribbler.

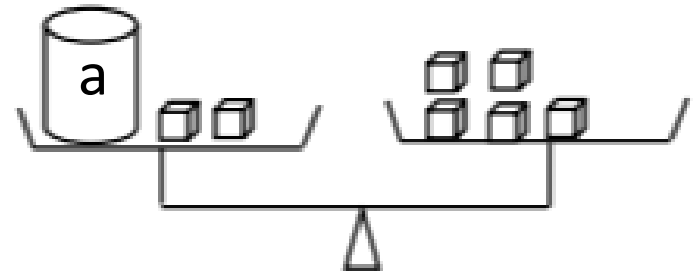


1) **Model** and **record** what will happen if you add two cubes to each side of the balance. **Draw** the results.

2) **Repeat** for subtracting 2 cubes from each side.

3) **Model**, **draw** and **record** what happens if you multiply both sides by 3.

Travaille en dyades. **Complète** dans ton cahier.



1) **Représente** et **inscrit** ce qui se produira si l'on ajoute 2 cubes de chaque côté de la balance. **Dessine** les résultats.

2) **Répète** en soustrayant 2 cubes de chaque côté.

3) **Représente**, **dessine** et **inscrit** ce qui produira si l'on multiplie les deux côtés par 3.

Write two different forms of equivalent equations for each equation below.

Écris deux différentes formes d'équations équivalentes à chaque équation ci-dessous.

Example/Exemple: 5m = 10	10m = 20 (double each side)	5m + 3 = 13 (add 3 to each side)	5m – 2 = 8 (subtract 2 for each side)

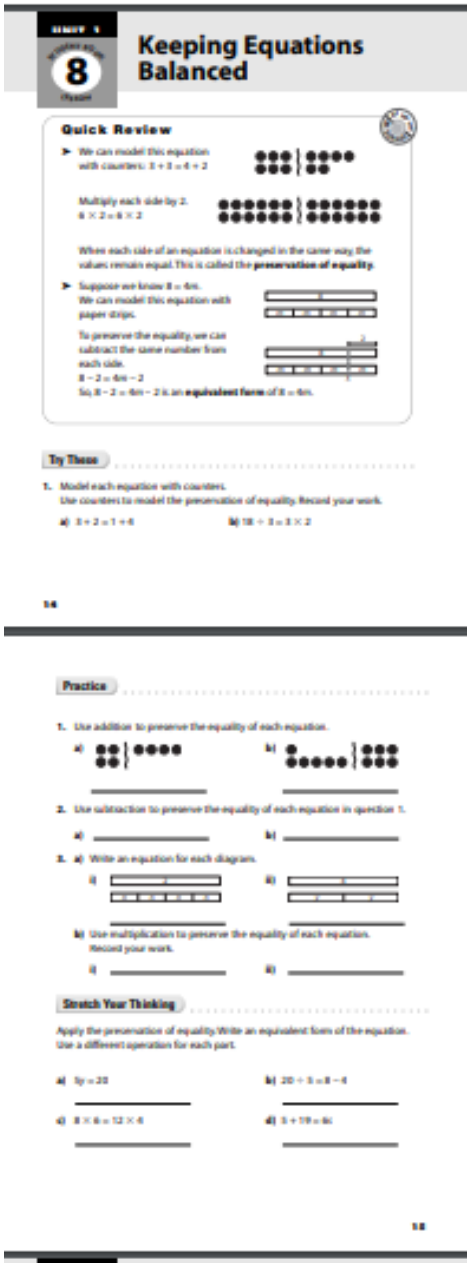
1) 6 - a = 2

2) 16 = 4s

3) 3b + 1 = 13

2e Inspection!

- **Worksheet – Lesson 8- Keeping Equations Balanced**



8

Keeping Equations Balanced

Quick Review

➤ We can model this equation with counters: $3 + 3 = 4 + 2$

Multiply each side by 2.
$6 \times 2 = 6 \times 2$

When each side of an equation is changed in the same way, the values remain equal. This is called the **preservation of equality**.

➤ Suppose we know $8 = 4m$.
We can model this equation with paper strips.

To preserve the equality, we can subtract the same number from each side.
$8 - 2 = 4m - 2$
So, $8 - 2 = 4m - 2$ is an **equivalent form** of $8 = 4m$.

Try These

1. Model each equation with counters.
Use counters to model the preservation of equality. Record your work.
a) $3 + 2 = 1 + 4$ b) $18 \div 3 = 3 \times 2$

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Practice

1. Use addition to preserve the equality of each equation.
a) b)

2. Use subtraction to preserve the equality of each equation in question 1.
a) b)

3. a) Write an equation for each diagram.
i) ii)

b) Use multiplication to preserve the equality of each equation. Record your work.
i) ii)

Stretch Your Thinking

Apply the preservation of equality. Write an equivalent form of the equation. Use a different operation for each part.

a) $5y = 20$ b) $20 \div 5 = 8 - 4$

c) $8 \times 6 = 12 \times 4$ d) $3 + 19 = 4c$

15

- Journal Question PR4 #2

PR4 - Quiz