# Lesson 13. Classwork

## WARM-UP

**1.** Calculate using property of addition: try to make it easier to calculate!

7 + 16 + 3 =_______________________________________ __

11 + 8 + 9 = _______________________________________ __

7 + 6 + 7= _______________________________________ __

48 + 37 + 12 + 13 = _________________________________ __

50 + 29 +21 = ______________________________________ __

**2.** Write down the numbers using digits:

two hundred ninety six ______

three hundred two ______

six hundred twenty seven______

one hundred eighty______

eighty six ______

forty six ______

five hundred forty eight ______

nine hundred sixty______

**3.** a) Lisa's bag fits into Ann's bag. Ann's bag fits into Clara's bag. Whose bag is the biggest?

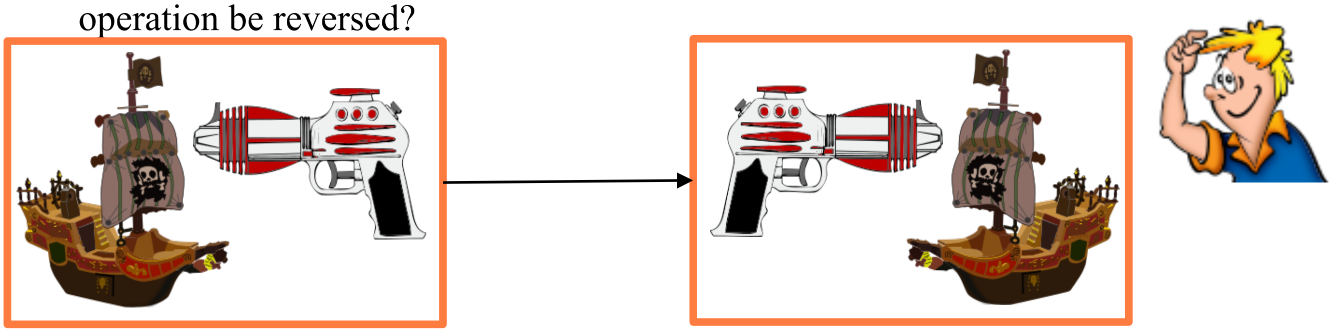
b) Ben's tea is colder than Paul's tea but warmer than Christina's tea. Whose tea is the coldest?

## NEW MATERIAL

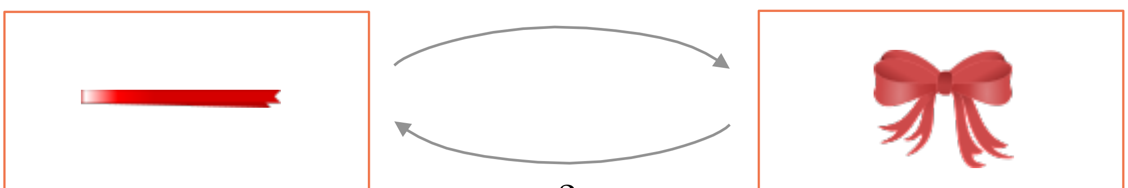
In mathematics, **inverse operations** are operations that 'undo' each other. Most operations we use have an inverse. Addition and subtraction are inverse operations – they “undo” each other.

**4.**

a) Look at the pictures below and describe what Jack did with the toys? Can this operation be reversed?



b) Name the operations performed on the picture below. Can this operation be reversed?



?

**5.**

A chef has cut some vegetables. Can these operations be reversed?

**6.**

Write the inverse operations for each action:

| | |
|---|---|
| To put on a shirt | |
| To break a toy car | |
| To climb up a tree | |
| To pour water into a cup | |
| To turn on a TV set | |

**7.** Use the inverse operation to solve an equation:

Example: $x + 12 = 15$

$x + 12 - 12 = 15 - 12$

$x = 3$

✔ $3 + 12 = 15$

Solve: $x + 37 = 21$

__________ = __________

_____ = _______

✔ ________ = _______

Solve: $x - 15 = 205$

__________ = __________

_____ = _______

✔ ________ = _______

**8.** Mind reading game.

1. Think of any number from 1 to 50. ___________
2. Add 25 to it.________________
3. Subtract 20 from a product.___________
4. Subtract 6 from a product___________
5. Add 50 to a product____________
6. Subtract 14 from a product______________.

What did you end up with?

Tell me the result and I'll tell you the number you thought of.

## REVIEW

**9.** Number the order of operations in the expressions.

$m + (n - k)$ $\quad$ $m + (n - k - t) + k$

$(m + n) - k$ $\quad$ $m + n - (k - t + k)$

**10.** There are ***3*** books on a shelf. ***One*** book is added. How many books are on the shelf? ____________________

There are ***a*** books on a shelf. ***One*** book is added. How many books are on the shelf? _____________________

There are ***a*** books on a shelf. ***b*** books are added. How many books are on the shelf? ____________________

There are ***3*** books on one shelf and ***6*** books on another. How many more books are on the second shelf than on the first? _______________________

Capital letters are used to denote sets: A, B

Lowercase letters are used to denote elements of sets: a, b

Curly braces { } denote a list of elements in a set.

Example: the set of letters: **{a, b, c, ..., x, y, z}**

**11.** a) How many elements are in the set of days of the week? _____________

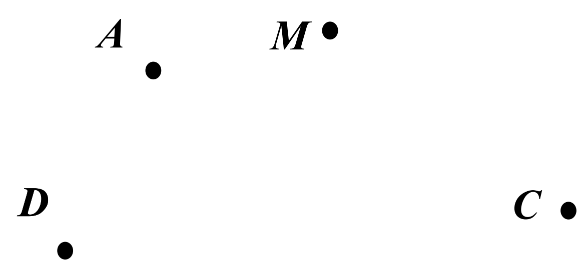
b) How many elements are in the set of months? ________________

c) What set is larger: set of all letters in the alphabet or set of all vowels? Draw Venn diagram for both sets.

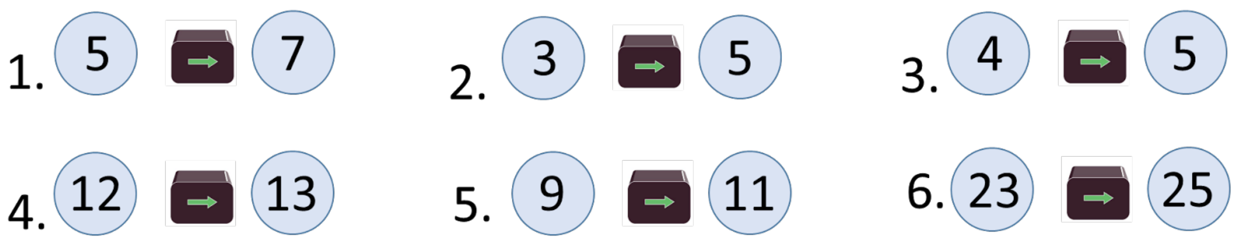
**12.** Jennifer listed the set of all letters in the word "library" as shown below. What is wrong with this set?

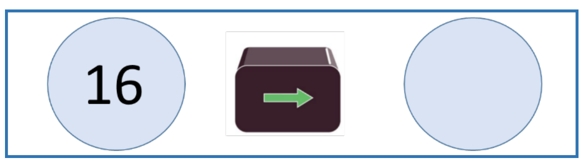
{l, i, b, r, a, r, y}

**13.** Plot the rays ***DA*** and ***MC***. Do they intersect?

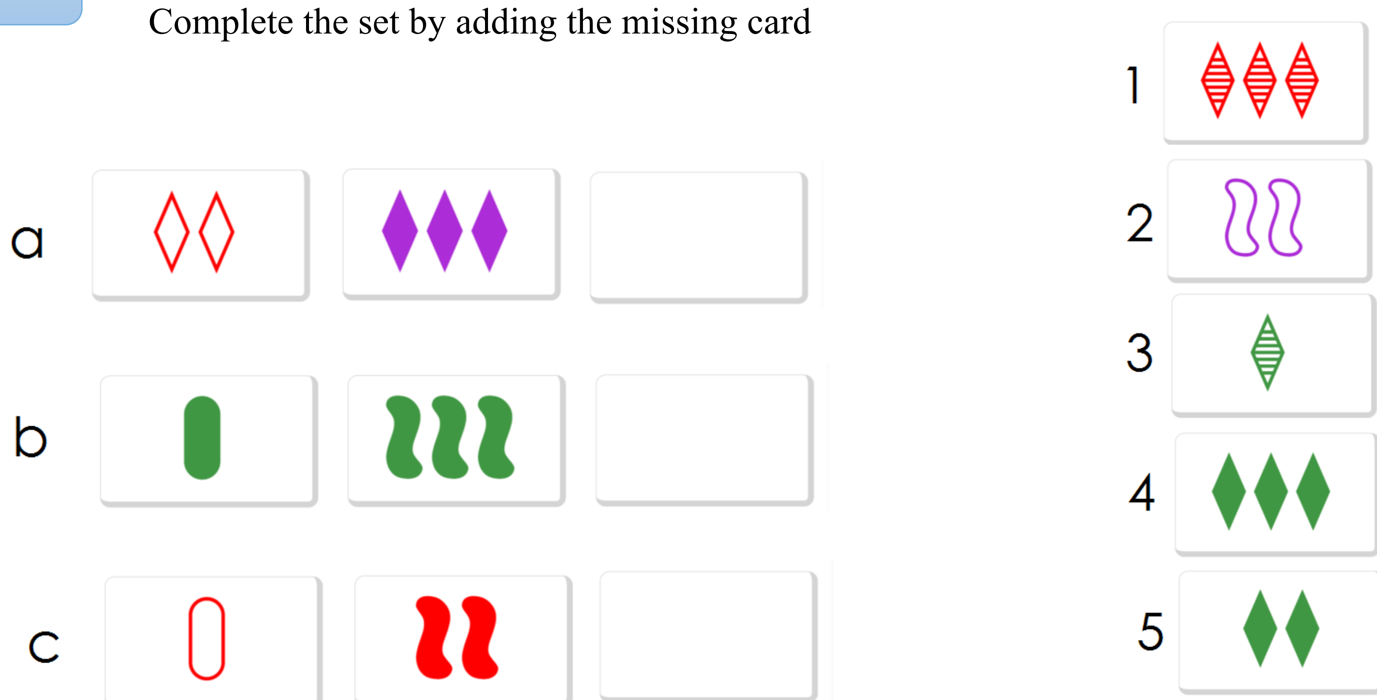



**14.** Guess the rules for "black" boxes below. Using those rules, guess a rule for the last box.




**15.** Complete the set by adding the missing card



## Challenge yourself

**16.**

2500 years ago, in ancient Mesopotamia, ones were written as Δ, tens as ◄, and 60 as ▼. How would they write number 124 in Mesopotamia those days?

a) ◄▼▼ΔΔΔΔ

b) ▼▼◄◄ΔΔΔΔ

c) ▼◄◄ΔΔΔΔ

d) ▼ΔΔΔ◄◄▼

e) ▼▼ΔΔΔΔ

### Did you know …

Roman numerals originated, as the name might suggest, in ancient Rome. There are seven basic symbols: I, V, X, L, C, D and M. The first usage of the symbols began showing up between 900 and 800 B.C.

Seven different letters: I, V, X, L, C, D and M represent 1, 5, 10, 50, 100, 500 and 1,000. We use these seven letters to make thousands of different numbers.

Roman numerals are not without flaws. For example, there is no symbol for zero, and there is no way to denote fractions.

| | | |
|---|---|---|
| 1 = I | 8 = VIII | 60 = LX |
| 2 = II | 9 = IX | 70 = LXX |
| 3 = III | 10 = X | 80 = LXXX |
| 4 = IV | 20 = XX | 90 = XC |
| 5 = V | 30 = XXX | 100 = C |
| 6 = VI | 40 = XL | 500 = D |
| 7 = VII | 50 = L | 1000 = M |

Forming numbers:

VI = 6 (5 + 1 = 6)

LXX = 70 (50 + 10 + 10 = 70)

MCC = 1200 (1000 + 100 + 100 = 1200)

IV = 4 (5 – 1 = 4)

XC = 90 (100 – 10 = 90)

CM = 900 (1000 – 100 = 900)

Roman numerals were used to record numbers in stone, art and coins. However that was a long time ago, these days they are used for list items, chapter headings, copyright dates and to mark film sequels such as the *Star Wars* films.

Roman numerals are also used on clock and watch faces.

Today, Roman numerals appear in building cornerstones, movie credits and titles. They are also used in names of monarchs, popes, ships and sporting events, like the Olympics and the Super Bowl.