


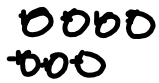
September 26, 2016

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- 1) $10 + 97$ 107
2) $84 - 10$ 74
3) $\frac{1}{2}$ Of 34 17
4) $6\,000 \div 100$ 60
5) $30 \div 5$ 6
6) 84×10 840
7) 50×2 100
8) 9×25 225
9) What number is divisible by 6? a) 40 b) 24 c) 34
10) $225 \div 25$ 9

Representing addition of Integers



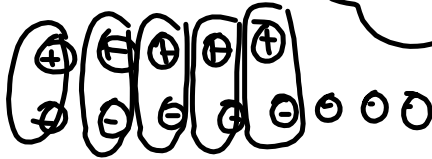
$$(+4) + (+3) = +7$$



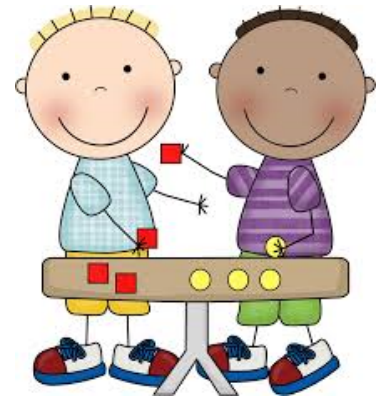
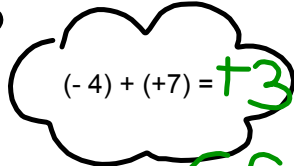
$$(-6) + (-3) = -9$$



$$(+5) + (-8) = -3$$



$$(-4) + (+7) = +3$$



2. What sum does each set of tiles model?

- How do you know you are correct?
- a) 3 yellow tiles and 2 red tiles
 - b) 3 yellow tiles and 4 red tiles
 - c) 2 red tiles and 2 yellow tiles



3. Use coloured tiles to represent each sum. Find each sum.

Sketch the tiles you used. What do you notice?

- a) $(+2) + (-2) = 0$
- b) $(-4) + (+4) = 0$
- c) $(+5) + (-5) = 0$

Cancelled
Zero pairs

4. Add. Sketch coloured tiles to show how you did it.

- a) $(+2) + (+3)$
- b) $(-3) + (+4)$
- c) $(-4) + (-1)$
- d) $(+1) + (-1)$
- e) $(-3) + (-4)$
- f) $(+5) + (-2)$

5. Add. Write the addition equations.

- a) $(+4) + (+3) = 7$
- b) $(-7) + (+5) = -2$
- c) $(-4) + (-5) = -9$
- d) $(+8) + (-1) = 7$
- e) $(-10) + (-6) = -16$
- f) $(+4) + (-13) = -9$



6. Represent each sentence with integers, then find each sum.

a) The temperature drops 3°C and rises 4°C . $(-3) + (+4) = +1$

b) Marie earned \$5 and spent \$3. $(+5) + (-3) = +2$

c) A stock rises 15¢, then falls 7¢. $(+15) + (-7) = +8$

d) Jerome moves his game piece 3 squares backward, then 8 squares forward.

e) Duma deposits \$12, then withdraws \$5. $(+12) + (-5) = +7$

$$(+12) + (-5) = +7$$

9. **Assessment Focus** = -4

a) Add: $(+3) + (-7) =$

b) Suppose you add the integers in the opposite order:

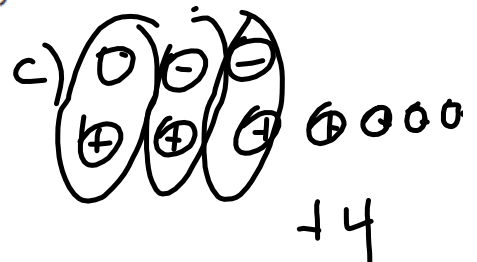
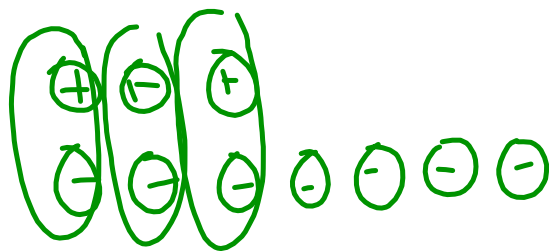
$(-7) + (+3)$. Does the sum change? \neq

Use coloured tile drawings and words to explain the result.

c) How is $(-3) + (+7)$ different from $(+3) + (-7)$? Explain.

d) Repeat parts a to c with a sum of integers of your choice.

What do you notice?



Each integer is its opposite (switched) so the ans. is oppo.

- 11. Take It Further** In a magic square, every row, column, and diagonal has the same sum. Copy and complete each magic square. How did you do it?

a)

| | | |
|----|----|----|
| +3 | -4 | +1 |
| -2 | 0 | +2 |
| -1 | +4 | -3 |

 ✓ ⊙

b)

| | | |
|----|----|----|
| -1 | -6 | +1 |
| 0 | -2 | -4 |
| -5 | +2 | -3 |

 -6 ✓ ↗

Magic Square:



2.3

Adding Integers on a Number Line

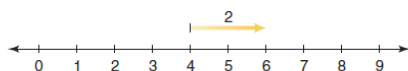
Focus Add integers using number lines.

We can show the addition of whole numbers on a number line: $4 + 2 = 6$

Draw 2 arrows.

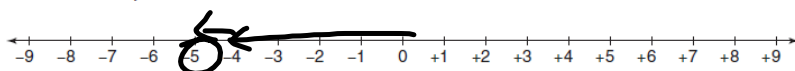


Or, begin at 4, and draw 1 arrow.



We can also show the addition of integers on a number line.

You will need copies of a number line.



- Choose two different positive integers. Use a number line to add them. Write the addition equation.
- Repeat the activity for a positive integer and a negative integer.
- Repeat the activity for two different negative integers.
- What happens when you add +2 and -2?



$$(-4) + (-1)$$
$$-5$$

- To add a positive integer, move right (in the positive direction).

$$(-2) + (+3)$$

Start at 0.

Draw an arrow 2 units long, pointing left.

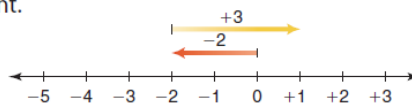
This arrow represents -2 .

From -2 , draw an arrow 3 units long, pointing right.

This arrow represents $+3$.

The arrow head is at $+1$.

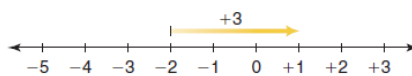
$$\text{So, } (-2) + (+3) = +1$$



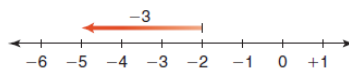
Notice that the first arrow ends at the first integer.

So, we could start at that integer,

and use only 1 arrow to find the sum.

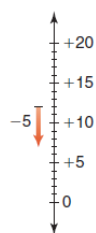


- To add a negative integer, move left
(in the negative direction).
 $(-2) + (-3)$
Start at -2 .
Draw an arrow 3 units long, pointing left.
This arrow represents -3 .
The arrow head is at -5 .
So, $(-2) + (-3) = -5$



We can use the same method to add integers on a vertical number line.

- The temperature is 12°C . It falls 5°C .
Find the final temperature.
 $(+12) + (-5)$
Start at $+12$.
Draw an arrow 5 units long, pointing down.
This arrow represents -5 .
The arrow head is at $+7$.
So, $(+12) + (-5) = +7$
The final temperature is 7°C .



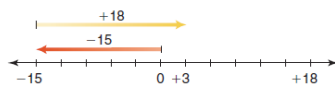
Example

Sandra and Joe buy and sell CDs at a flea market.
One day in August, they bought 3 CDs for \$5 each.
They sold 2 CDs for \$9 each.

- Write the expenses and income as integers.
- Did Sandra and Joe make money or lose money that day in August?
Explain.

A Solution

- Expenses: $(-5) + (-5) + (-5) = -15$; they spent \$15.
Income: $(+9) + (+9) = +18$; they made \$18.
- Draw a number line.
Add expenses and income.



$$(-15) + (+18) = +3$$

Since the sum of the expenses and income is positive,
Sandra and Joe made money. They made \$3.

Another Strategy
We could use coloured tiles.

Practice

1. Use a number line to represent each sum.
a) $(+1) + (+3)$ b) $(-1) + (+3)$ c) $(-3) + (+1)$ d) $(-1) + (-3)$
e) $(-3) + (-4)$ f) $(-3) + (+4)$ g) $(+3) + (-4)$ h) $(+3) + (+4)$
2. Use a number line to add.
a) $(+4) + (+2)$ b) $(+5) + (-3)$ c) $(-4) + (-2)$ d) $(-8) + (+2)$
e) $(-6) + (-7)$ f) $(+1) + (-6)$ g) $(-5) + (+2)$ h) $(+8) + (+4)$
3. a) Reverse the order of the integers in question 2, then add.
b) Compare your answers to the answers in question 2.
 What do you notice?
c) Make a general statement about your observations.

HW
p. 62, 9.1 ☺

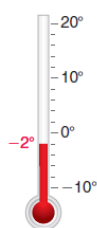
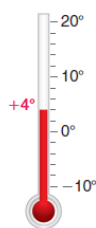
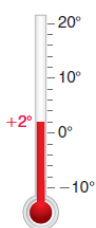
*Remember to
use your number.
line page!

4. Look at these thermometers. Find each temperature after:

a) it falls 4°C

b) it falls 7°C

c) it rises 6°C



5. a) The temperature rises 7°C , then drops 2°C .

What is the overall change in temperature?

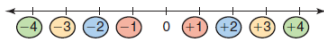
b) Adrian loses $\$4$, then earns $\$8$.

Did Adrian gain or lose overall?

c) The value of a stock went up $\$3$, then down $\$2$.

What was the final change in the value of the stock?

6. Opposite integers are the same distance from 0 but are on opposite sides of 0.



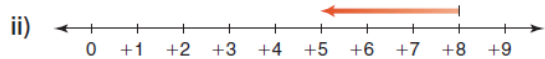
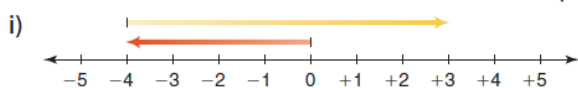
- a) Write the opposite of each integer.
 i) +2 ii) -5 iii) +6 iv) -8
 b) Add each integer to its opposite in part a.
 c) What do you notice about the sum of two opposite integers?

7. Use a number line. For each sentence below:

- a) Write each number as an integer.
 b) Write the addition equation.
 Explain your answer in words.
 i) You take 5 steps backward, then 10 steps backward.
 ii) You withdraw \$5, then deposit \$8.
 iii) A deep sea diver descends 8 m, then ascends 6 m.
 iv) A person drives a snowmobile 4 km east, then 7 km west.
 v) A person gains 6 kg, then loses 10 kg.



8. a) Write the addition equation modelled by each number line.
b) Describe a situation that each number line could represent.



- 11. Take It Further** The temperature in Calgary, Alberta, was -2°C . A Chinook came through and the temperature rose 15°C . At nightfall, it fell 7°C . What was the final temperature? Support your answer with a drawing.

