

1) $10 + 87$

2) $54 - 10$

3) $\frac{1}{2}$ of 24

4) $9\,000 \div 10$

5) $55 \div 5$

6) 45×10

7) 70×2

8) 8×25

9) $606 \div 6$

10) $125 \div 25$



falls

forward

down

up

above

backward

below

drop

deposit

rises

pay back

backward

Zero pairs...

Homework sheet

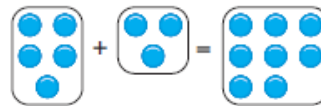
2.2**Adding Integers with Tiles****Focus** Use coloured tiles to add integers.

Recall that when you add two numbers, such as $5 + 3$, you can show the addition by combining 5 counters with 3 counters to obtain 8 counters.

You can add two integers in a similar way.

You know that $+1$ and -1 combine to make a zero pair.

We can combine coloured tiles to add integers.

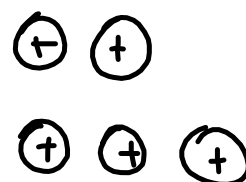


Explore



You will need coloured tiles.

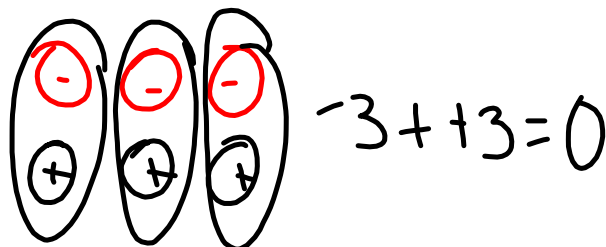
- Choose two different positive integers.
Add the integers.
Draw a picture of the tiles you used.
Write the addition equation.
- Repeat the activity for a positive integer and a negative integer.
- Repeat the activity for two different negative integers.



$$+3 + +2 = 5$$

Reflect & Share

Share your equations with another pair of classmates.
How did you use the tiles to find a sum of integers?
How can you predict the sign of the sum?



Connect

- To add two positive integers: $(+5) + (+4)$

We can model each integer with tiles.

+5: 

+4: 

Combine the tiles. There are 9 yellow tiles.

They model +9.

So, $(+5) + (+4) = +9$

To separate the integers, YOU
MUST use brackets!!!!

This is an addition
equation.

$$\begin{aligned} &(+2) + (+4) \\ &(+2) + (+4) \\ &(-2) + (+4) \end{aligned}$$

Look how the
counters are
drawn

- To add a negative integer
and a positive integer: $(-6) + (+9)$
We can model each integer with tiles. Circle zero pairs.



There are 6 zero pairs.

There are 3 yellow tiles left.

They model $+3$.

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

Look how the counters are drawn

$$\begin{aligned} &(+9) + (-6) \\ &(-6) + (+9) \end{aligned}$$

- To add two negative integers: $(-3) + (-7)$
We can model each integer with tiles.

-3 : 

-7 : 

Combine the tiles. There are 10 red tiles.

They model -10 .

So, $(-3) + (-7) = -10$

Look how the counters are drawn

Example

The temperature rises 5°C , then falls 8°C .

- a) Represent the above sentence with integers. b) Find the overall change in temperature.

A Solution

- a) $+5$ represents a rise of 5°C .

-8 represents a fall of 8°C .

Using integers, the sentence is: $(+5) + (-8)$

Look how the counters are drawn

- b) Model each integer with tiles.

Circle zero pairs.



There are 3 red tiles left.

They model -3 .

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

The overall change in temperature is -3°C .

Practice

Use coloured tiles.

1. What sum does each set of tiles model?

Write the addition equation

a)



b)



c)



d)



e)



f)



*When you circle your zero pairs- your answer is what is left over

number sentence $+/-$

p/n

- numbers

draw circle print

p. 58-1, 2, 3, 5, 6

Will you always have zero pairs?

p. 59-8, 9, 11

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) $(+2) + (-2)$ b) $(-4) + (+4)$ c) $(+5) + (-5)$



5. Add. Write the addition equations.

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

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

- a) The temperature drops 3°C and rises 4°C .
b) Marie earned \$5 and spent \$3.
c) A stock rises 15¢, then falls 7¢.
d) Jerome moves his game piece 3 squares backward, then 8 squares forward.
e) Duma deposits \$12, then withdraws \$5.

8. Copy and complete.

a) $(+5) + \square = +8$

b) $\square + (-3) = -4$

c) $(+3) + \square = +1$

d) $(-5) + \square = -3$

e) $(+2) + \square = +1$

f) $\square + (-6) = 0$

9. **Assessment Focus**

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

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

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

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?

- 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		+1
	0	
-1		

b)

-1		+1
	-2	
		-3

- 12. Take It Further** Copy each integer pattern.
What do you add each time to get the next term?
Write the next 4 terms.

a) $+8, +4, 0, -4, \dots$

b) $-12, -9, -6, -3, \dots$

