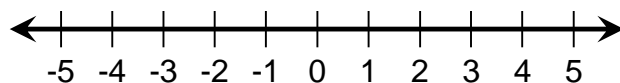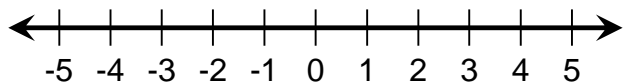We will add and subtract on a number line.

Opposite numbers are the same distance from zero on a number line.

Determine the opposite of the numbers.

1. -5

2. 4

Locate the opposites on the number line.

Addition means to put together.
- *On a number line, the __sum__ of two numbers is the location after moving from the first addend a distance of the second addend.*

Subtraction means to add the **opposite**.

Addition
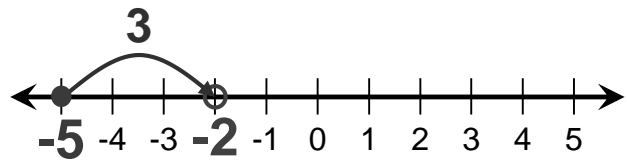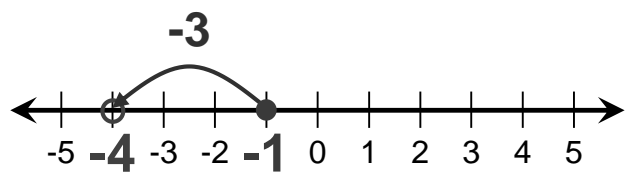
$$a + (\pm b)$$
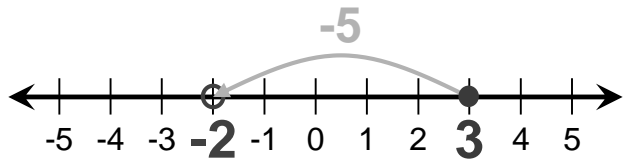
direction ⌐ ⌐ distance

Addition

-5 + 3

3

-5 -4 -3 -2 -1 0 1 2 3 4 5

-1 + (-3)

-3

-5 -4 -3 -2 -1 0 1 2 3 4 5

Subtraction

3 − 5
3 + (-5)

-5

-5 -4 -3 -2 -1 0 1 2 3 4 5

-1 − (-5)
-1 + (5)

5

-5 -4 -3 -2 -1 0 1 2 3 4 5
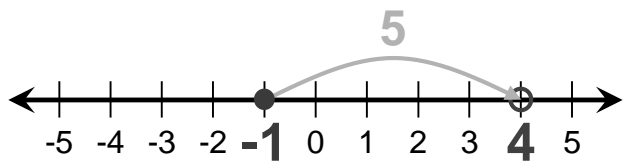
CFU

Explain how the number line below shows the addition problem 2 + (-3).

-3

-4 -3 -2 -1 0 1 2 3 4

Which is equivalent to the subtraction problem 7 − (-2)?
How do you know?

  A 7 + (-2)   B 7 + (2)

In your own words what does subtraction mean? Subtraction means _____.

Addition means to put together.
Subtraction means to add the **opposite**.
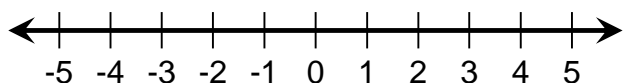
Add and subtract on a number line.

❶ Rewrite subtraction to add the opposite, if necessary.
❷ Locate the first addend on the number line.
❸ Move the distance of the second addend.
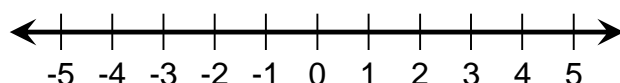**❹** Interpret[1] the answer. *"The sum/difference of __ and __ is __."*
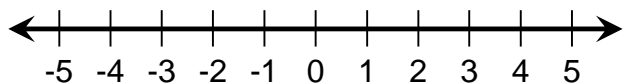
Addition
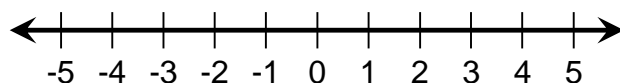$$a + (\pm b)$$
direction ⌣ *distance*

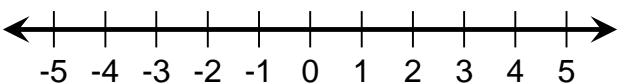1. -3 + 6

2. -4 + 2

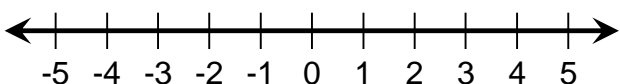---

3. 4 + (-7)

4. -2 + (-3)

---

5. -2 − 3

6. 4 − 7

---

7. -5 − (-4)

8. 2 − (-1)

---
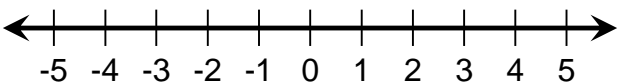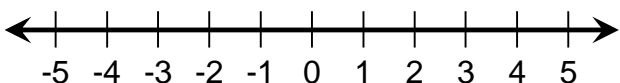
❶ How did I/you rewrite subtraction?
❸ How did I/you move the distance of the second addend?

[1] explain (synonym)

Solving Math Problems

1 Determine what the question is asking.
2 Determine the math concept required.
3 Determine relevant information.
4 Solve the problem, then interpret the answer.
5 Check the reasonableness of your answer.

9. Jesse owes his brother $7. He gets $15 for allowance this week. How much money will he have after he pays his brother back?

_____

_____

10. Courtney's class is playing a math game. She starts her turn with -3 points. This turn, she loses 4 points. How many points does Courtney have now?

_____

CFU

1 How did I/you determine what the question is asking?
2 How did I/you determine the math concept required?
3 How did I/you determine the relevant information?
4 How did I/you solve and interpret the problem?
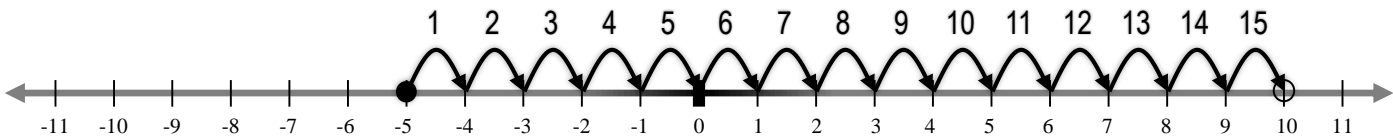5 How did I/you check the reasonableness of the answer?

Addition means to put together.
Subtraction means to add the **opposite**.

1 *Adding and subtracting on a number line will help you understand positive and negative numbers in the real world.*

Morning Temperature: -5° F
Afternoon Temperature: 10° F

Temperature Change: 15° F

2 *Adding and subtracting on a number line will help you do well on tests.*

Sample Test Question:

73. Choose Yes or No to indicate whether each expression is equivalent to -7 + 5.

A 8 − 6	O Yes	O No
B -9 + 7	O Yes	O No
C 1 − 3	O Yes	O No
D 2 − (-4)	O Yes	O No

Does anyone else have another reason why it is relevant to add and subtract on a number line? (Pair-Share) Why is it relevant to add and subtract on a number line? You may give one of my reasons or one of your own. Which reason is more relevant to you? Why?

Addition means to put together.
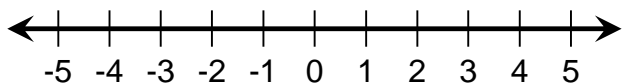**Subtraction** means to add the **opposite**.

Add and subtract on a number line.

❶ Rewrite subtraction to add the opposite, if necessary.
❷ Locate the first addend on the number line.
❸ Move the distance of the second addend.
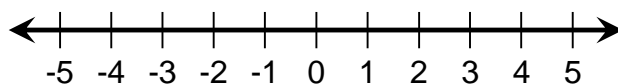❹ Interpret the answer. *"The sum/difference of __ and __ is __."*

Addition

$$a + (\pm b)$$

direction *distance*

1. $-2 + 3$
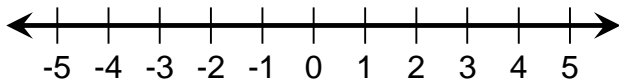

2. $-1 - (-4)$

1. Choose Yes or No to indicate whether each expression is equivalent[2] to $-3 - (-1)$.

A	$2 - 4$	O Yes O No
B	$5 + (-3)$	O Yes O No
C	$-1 + (-3)$	O Yes O No
D	$-4 + 2$	O Yes O No

Word Bank

opposite
addition
subtraction
number line

What did you learn today about adding and subtracting on a number line? (Pair-Share)
Use words from the word bank.

Day 1 _____

_____

Day 2 _____

_____

Vocabulary

[2] equal value

Name

Addition means to put together.
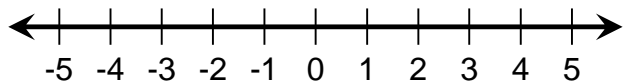**Subtraction** means to add the **opposite**.

Add and subtract on a number line.

❶ Rewrite subtraction to add the opposite, if necessary.
❷ Locate the first addend on the number line.
❸ Move the distance of the second addend.
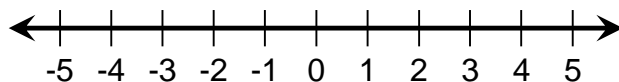❹ Interpret the answer. *"The sum/difference of __ and __ is __."*

Addition

$$a + (\pm b)$$

direction   *distance*

1. -5 + 7
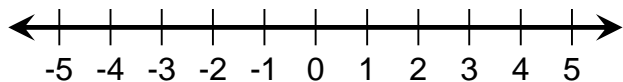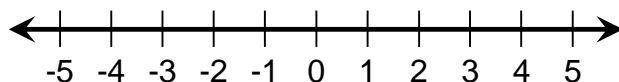
-5 -4 -3 -2 -1 0 1 2 3 4 5

2. -1 + (-3)

-5 -4 -3 -2 -1 0 1 2 3 4 5

3. 2 − 4

-5 -4 -3 -2 -1 0 1 2 3 4 5

4. -3 − (-1)

-5 -4 -3 -2 -1 0 1 2 3 4 5

Solving Math Problems

1 Determine what the question is asking.
2 Determine the math concept required.
3 Determine relevant information.
4 Solve the problem, then interpret the answer.
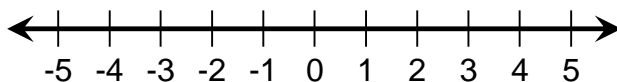5 Check the reasonableness of your answer.

5. This afternoon the temperature was -3° C. By nighttime, the temperature dropped another 5° C. What was the temperature at night?
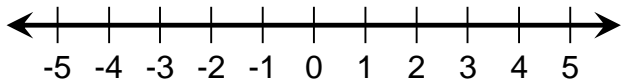
_____

1. -1 + 5
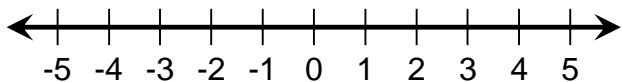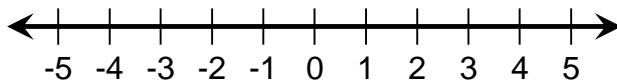

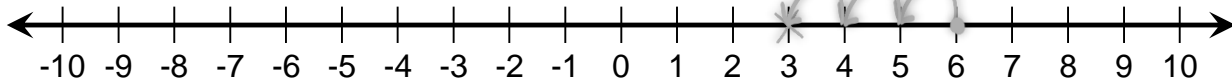
2. -3 + -1

3. -4 − (-8)

4. 2 − (-3)

Access Common Core

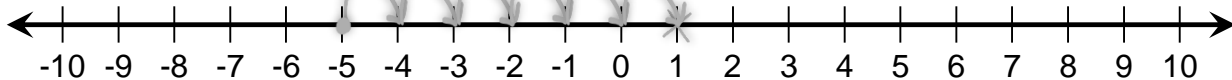Describe and correct the errors below in adding and subtracting on a number line.
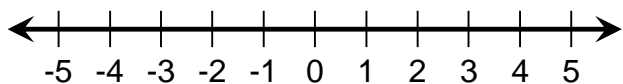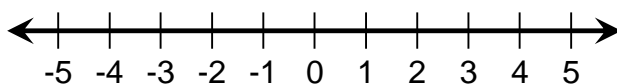
1. 6 − (-3) = 3

_____

_____

2. -5 + (-6) = 1

_____

_____

Name

1. 2 + (-6)

```
←—+—+—+—+—+—+—+—+—+—+—+—→
  -5  -4  -3  -2  -1  0  1  2  3  4  5
```

2. 5 − 7

```
←—+—+—+—+—+—+—+—+—+—+—+—→
  -5  -4  -3  -2  -1  0  1  2  3  4  5
```

3. -3 − (-6)

```
←—+—+—+—+—+—+—+—+—+—+—+—→
  -5  -4  -3  -2  -1  0  1  2  3  4  5
```

4. -1 − (4)

```
←—+—+—+—+—+—+—+—+—+—+—+—→
  -5  -4  -3  -2  -1  0  1  2  3  4  5
```
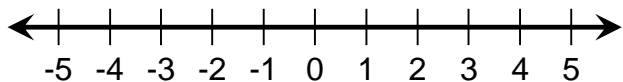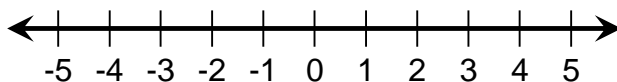
Access Common Core

1. Choose Yes or No to indicate whether each expression is equivalent to -9 − (-6).
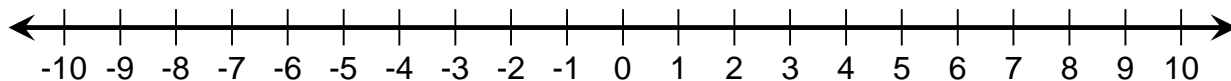
```
←—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—→
 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
```

A   7 − 10   O Yes   O No
B   8 + (-11)   O Yes   O No
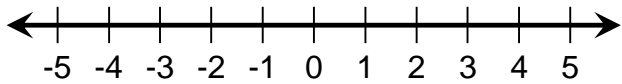C   -5 − (-3)   O Yes   O No
D   -2 + -5   O Yes   O No

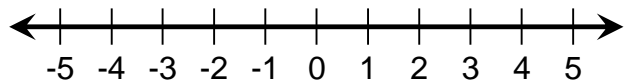2. Choose Yes or No to indicate whether each expression is equivalent to 6 + (-5).

```
←—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—→
 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
```

A   2 − 1   O Yes   O No
B   7 − (-8)   O Yes   O No
C   -3 + (4)   O Yes   O No
D   -2 + -1   O Yes   O No
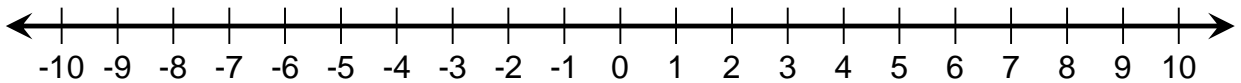
Name
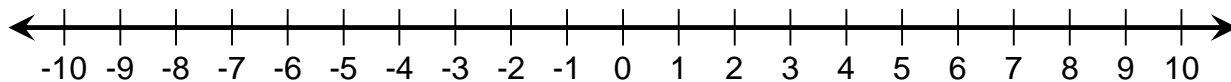
1. -3 + 2

2. -1 + -1

Access Common Core

For each expression, write an addition and a subtraction expression that is equivalent.
Explain how you know the expressions are equivalent.

1. 8 + (-3)

_____

_____

2. -7 – (-2)

_____

_____

3. 10 + (-4)

_____

_____