Name & Surname: _____ Class: _____ Date: _____

Positive and Negative Numbers

Using opposites to describe real life

About 45 minutes Level ★★★☆☆



Positives, Negatives, Zero

Positive and negative numbers show **opposite** values. **Zero** is the reference point.

- Above: +6°F above zero, +15 ft above sea level, +$25 credit.
- Below: -6°F below zero, -15 ft below sea level, -$25 debit.
- Example: 0 ft means sea level, so +10 ft is 10 ft above and -10 ft is 10 ft below.



Key words

opposite: values in different directions

positive: greater than zero

negative: less than zero

zero: starting or reference point

credit: money added

debit: money taken out

TASK A

/4

Write each number in the chart. Think about place value.

Number	Th	H	T	O	t	h
1528						
3604						
29.5						
407.13						

Th = thousands · H = hundreds · T = tens · O = ones · t = tenths · h = hundredths

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Temperatures and Heights

Practice showing temperature and elevation with signs.

TASK B

/12

Show temperatures and heights with signed numbers.

WARM UP

1. The temperature is 8°F above zero. Write it as a **signed** number with units.

Answer: _____

2. The temperature is 6°F below zero. Write it as a **signed** number with units.

Answer: _____

3. The elevation is 15 ft above sea level. Write it as a **signed** number with units.

Answer: _____

4. The elevation is 20 ft below sea level. Write it as a **signed** number with units.

Answer: _____

PRACTICE

5. A diver is at -12 ft. Sea level is 0 ft. How many feet **below** sea level is the diver?

Answer: _____

6. Morning temperature is -4°F. Afternoon temperature is 6°F. Which temperature is **warmer**?

Answer: _____

7. If +$40 means a $40 credit, what **signed** number means a $40 debit?

Answer: _____

8. Explain what 0 means when + means above sea level and - means below. Use **sea level** in your answer.

Answer: _____

PROBLEM SOLVING

9. Freezing is 32°F. Night temperature is -5°F. How many degrees **below** freezing is it?

Answer: _____

10. A trailhead at sea level is 0 ft. A hiker climbs to +120 ft, then goes down to -30 ft. What **signed** number shows the final position?

Answer: _____

11. Starting at $0, a student has a $60 debit recorded as -$60. What does 0 mean and what does -$60 **mean**?

Answer: _____

12. Explain how you know that -10 ft is lower than +5 ft. Use **order** on the number line.

Answer: _____

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Money and Charge

Practice showing money and charge with signs.

TASK C

/12

Show money and charge with opposite signs.

WARM UP

1. A $20 credit is +$20. Write a $20 debit as a **signed** number.

Answer: _____

2. Write 2 units of negative charge as a **signed** number with units.

Answer: _____

3. Ground floor is 0. Four floors up is +4. Write 3 floors **down** as a signed number.

Answer: _____

4. If +10 steps means 10 steps **forward**, what does -10 steps mean?

Answer: _____

PRACTICE

5. Balance 0 means no money held or owed. After a +$75 credit and a -$100 **debit**, what is the change from 0?

Answer: _____

6. Starting at 0, a balloon rises to +50 ft then sinks to -20 ft. What **signed** number shows the final height?

Answer: _____

7. Order these charges from most **negative** to most positive: +2 units, -5 units, 0 units, -1 units.

Answer: _____

8. Explain what 0 means for electric **charge**. Use neutral in your answer.

Answer: _____

PROBLEM SOLVING

9. A student owes $45, recorded as -$45. After paying $45, the balance is $0. What does 0 **mean** here?

Answer: _____

10. An elevator starts at 0. It goes up +6 floors, then down 9 floors. What **level** is it at now?

Answer: _____

11. A game score starts at 0. A student gets +30 points then -45 points. What is the **score** now?

Answer: _____

12. Explain how you know that a -$100 **balance** is worse than a -$10 balance.

Answer: _____

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Lines and Questions

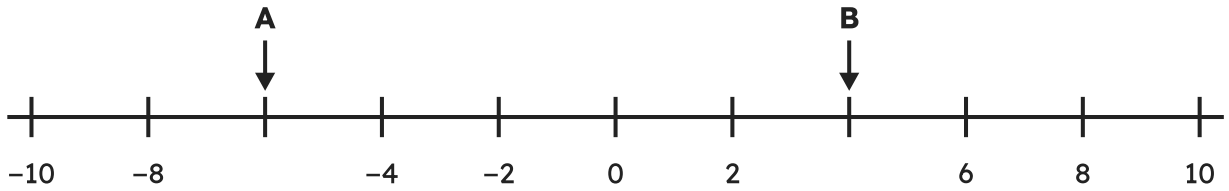
Read number lines and make up your own questions.

↑↓ TASK D

/6

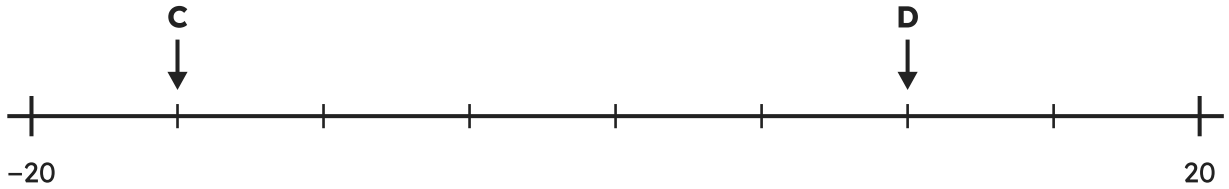
Read arrows A and B, then mark the missing value.

1



A = ☐ **B =** ☐ Draw an arrow to show: -8

2



C = ☐ **D =** ☐ Draw an arrow to show: -5

TASK E

Write a real-life question that gives each answer.

The answer is: **-10°F**

What could the question be?

.....

.....

.....

The answer is: **0 ft**

What could the question be?

.....

.....

.....

The answer is: **-$15**

What could the question be?

.....

.....

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Fix and Plot

Spot common mistakes and plot opposite coordinates.

TASK F

/4

Find the wrong step in each solution.



Student A

Which is colder: -8°F or -3°F?

1. -8°F and -3°F are both below zero
2. -3°F is colder because 3 is less than 8
3. So the answer is -3°F

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student B

Sea level is 0 ft. A tunnel is 25 ft below sea level. Write this elevation.

1. Below sea level is opposite to above
2. Below means positive
3. So the answer is 25 ft

The mistake is in step: _____

What went wrong?

.....

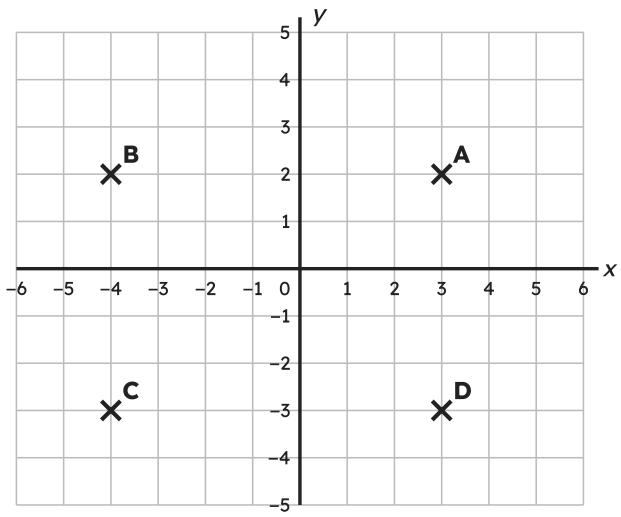
Correct answer: _____

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Positive and Negative Numbers

TASK G /5

Read and join points with negative coordinates.



A = (☐ , ☐)

B = (☐ , ☐)

C = (☐ , ☐)

D = (☐ , ☐)

Join the points in order. What shape have you made?

Shape: _____

How did I do?

Circle a face for each line.

I can use + and - to show opposite values.

I can explain what 0 means in context.

I can read positives and negatives on a number line.

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Answer sheet: Positive and Negative Numbers

Task A

1. 1528: 1 | 5 | 2 | 8 | – | –
2. 3604: 3 | 6 | 0 | 4 | – | –
3. 29.5: – | – | 2 | 9 | 5 | –
4. 407.13: – | 4 | 0 | 7 | 1 | 3

Task B

1. 8°F
2. -6°F
3. 15 ft
4. -20 ft
5. 12 ft
6. 6°F
7. -$40
8. 0 means sea level, where above and below meet.
9. 37°F
10. -30 ft
11. 0 means no money held and no debt; -$60 means $60 owed.
12. -10 ft is to the left of +5 ft on the number line, so it is lower.

Task C

1. -$20
2. -2 units
3. -3
4. 10 steps back
5. -$25
6. -20 ft
7. -5 units, -1 units, 0 units, +2 units
8. 0 means neutral, neither positive nor negative charge.
9. No debt and no balance; nothing is owed.
10. -3
11. -15 points
12. -$100 is farther left from 0, so more is owed.

Task D

1. A = -6; B = 4; arrows at -8
2. C = -15; D = 10; arrows at -5

Task E

Answers will vary, e.g. -10°F → What signed number shows 10°F below zero? 0 ft → What elevation means sea level itself? -$15 → What signed number shows a $15 debit?

Task F

1. Step 2 is wrong: They compared 3 and 8 without the sign. Farther left on the number line is colder, so -8°F is colder than -3°F. Correct answer: -8°F

2. Step 2 is wrong: They used + for below. Below sea level is negative, so it is -25 ft. Correct answer: -25 ft

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Task G

A (3, 2), B (–4, 2), C (–4, –3), D (3, –3). The shape is a rectangle.

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