

2.4 Modeling Rational Numbers

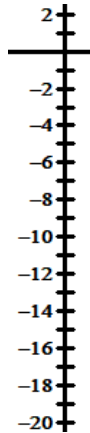
NOTES

MATH 7

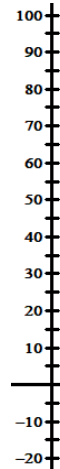
Write your questions here!



A scuba diver is 12 meters under the surface of the water. After seeing some sharks they decide to swim up 7 meters towards the surface. The sharks leave so they dive down 10 meters. How deep is the diver?



The temperature in the morning is 68 degrees Fahrenheit. At the midday the temp is 77 degrees. How much did the temperature change?



Micaela hikes east 4 miles from camp then west 4 miles. Where is the hiker?

Model:

Expression:

An atom consists of charged particles called electrons and protons. Each proton has a charge of +1 and each electron has a charge of -1. An ion has 6 protons and 4 electrons. What is the ion's charge?

Model:

Expression:

Anthony has \$50 dollars. The following happens...

- He gets \$10 for mowing a lawn
- He spends \$8 on lunch
- He finds \$5 on the playground

How much money does he have?

How much money did he gain/lose?

SUMMARY:

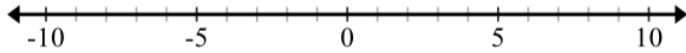
Now, summarize your notes here!



Plot the two points on the number line. Find the distance between the two points.

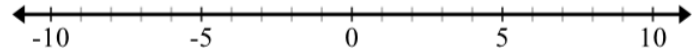
1. Plot -7 and 4

Distance =



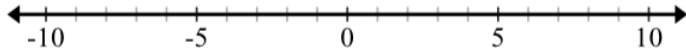
2. Plot 5 and -2

Distance =



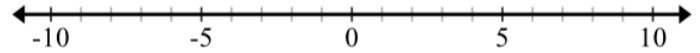
3. Plot 0 and -8

Distance =



4. Plot -1 and -9

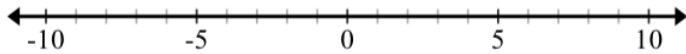
Distance =



Model the situation on the number line. Write an expression and solve it. Label your answer.

4. Terry has \$6. He spends \$4 on candy and then gets \$5 in allowance. How much money does he have?

Model:

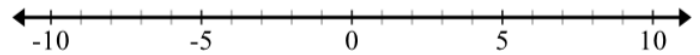


Expression:

Answer:

5. A treasure map says “take 9 steps right, then 15 steps left”. Where are you in relation to where you started?

Model:

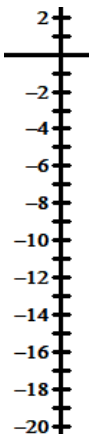


Expression:

Answer:

6. A submarine is 4 meters underwater. The sub dives 12 meters down to look at a fish. The sub then rises 5 meters toward the surface. How deep is the sub?

Model:

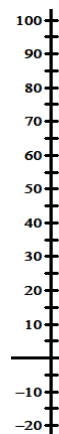


Expression:

Answer:

7. The temperature in the afternoon is 20°F . At the midnight the temp is -15°F . How much did the temperature change?

Model:



Expression:

Answer:

Protons have a positive charge and electrons have a negative charge. Fill in the table below.

8.

Name of Ion	Proton Charge	Electron Charge	Ion Charge
Ion #1	+5	-3	
Ion #2	+6		-3
Ion #3		-4	+2
Ion #4	+4	-4	
Ion #5	+8		+2

Create a model of the situation. Write an expression and solve it. Label your answer.

9. A diver climbs up the high dive 12 feet. She jumps off the board and goes down 21 feet into the pool below. How deep into the water did the dive go?

Model:

Expression:

Answer:

Write an expression for each situation and solve it. Label your answer.

10. Brandi owes her mom \$30. She pays back \$10 but then has to borrow 15 more dollars. How much does she owe her mom?
11. Ashleigh is on a quiz show where correct answers earn you 8 points and wrong answers cost you 4 points. Ashleigh has 24 points and answers a question wrong. She then gets 2 questions in a row correct. How many points does she have?
12. A river is usually 8 feet deep. After a rain the water level increased 3 feet. The next day, the water level dropped 6 feet. What is the depth of the water?

Write an expression for each situation and solve it. Label your answer.

- The outdoor club started a hike at 1200 feet. They climbed 200 feet up the mountain and then descended 500 feet. What height did they end at?
- The outdoor club fundraises \$150. The club buys gear for \$80 dollars. The club receives a \$30 donation. How much money do they have?

Multiple Choice

- A scuba diver standing on a boat is at an altitude of 1.3 meters above sea level. The scuba diver jumps into the water and decreases his altitude by 5.6 meters in one minute.

Which equation can be used to determine the scuba diver's altitude, in meters relative to sea level, one minute after jumping into the water?

- (A) $1.3 + 5.6 = 6.9$
 (B) $-1.3 + 5.6 = 4.3$
 (C) $1.3 + (-5.6) = -4.3$
 (D) $-1.3 + (-5.6) = -6.9$

EXIT TICKET –

Tides are measured by the heights of the tide above or below sea level. The difference between the two heights represents how much greater the high tide is than the low tide. Fill in the table below.

Location	High Tide	Low Tide	Difference of High Tide and Low Tide
A	8	-2	
B	7.5		10.5
C		$-\frac{3}{4}$	1