



Discuss

You can tell the difference between negative and positive numbers by the way they are written. "Negative five" is written as "-5."

Show how to use a number line to represent and solve each problem.

1. Tom, Rhonda, and Professor Peabody arrive in Minnesota and find that the temperature is -10°F . They watch the weather report and see that the temperature will be twenty degrees warmer on Monday morning. Find the temperature on Monday morning.
2. On Tuesday the temperature was -12°F at midnight. By the next day the temperature had risen 24 degrees. What was the temperature the next day?
3. If the overnight temperature in Alaska was -8°F , but the temperature rose to 18° during the day, what was the difference between these low and high temperatures? Is this a positive change or a negative change?
4. At midday the temperature was 5°F . The temperature then fell by 11° that evening. What was the final evening temperature?
5. The temperature is 20° below zero. How much must it rise to reach -3° ?

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Student Guide - Page 245

Student Guide

What's Below Zero (SG pp. 245–246)

Questions 1–7

- 1.* 10°F
- 2.* 12°F . Possible answer: I started at -12 on the number line. Then I moved $+12$ to get to 0 and $+12$ more to get to 24, and I ended up on 12°F .
- 3.* 26° ; Positive change
- 4.* -6°F
- 5.* 17°F
6. Monday 8°F
 Tuesday 18°F
 Wednesday -32°F
 Thursday 44°F
 Friday 14°F
7. -7 to 83 is 90° change in a positive direction.

Explore

Tom, Rhonda, and Professor Peabody stay in Minnesota for a week. Professor Peabody recorded the temperature each morning and the change in temperature throughout the day. This is shown in the data table below:

Morning to Evening Temperature Change

Day of Week	Temperature in Morning	Change in Temperature	Temperature in Evening
Monday	23°F	drops 15°F	
Tuesday	-17°F	rises 35°F	
Wednesday	-22°F	drops 10°F	
Thursday	28°F	rises 16°F	
Friday	37°F	drops 23°F	

6. Tell the temperature in the evening for each day. Use a number line and check your answer with a calculator.
7. On Friday evening, Tom, Rhonda, and Professor Peabody return to Arizona, where the temperature is 83°F . If the temperature was -7°F when they left Minnesota, what is the change in temperature from Minnesota to Arizona? Show how to use a number line to solve this problem.

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Student Guide - Page 246

*Answers and/or discussion are included in the lesson.

Homework (SG pp. 247–248)

Questions 1–10

1. -9°F
2. 7°F
3. -33°F
4. The temperature must rise 17°F .
5. -11° , -8° , 3° , 4° , 14°
6. A. 8°
B. 7°
C. 5°

D. International Falls

Time	Temperature	Time	Temperature
1:00 AM	8°F	2:05 AM	-5°F
1:05 AM	7°F	2:10 AM	-6°F
1:10 AM	6°F	2:15 AM	-7°F
1:15 AM	5°F	2:20 AM	-8°F
1:20 AM	4°F	2:25 AM	-9°F
1:25 AM	3°F	2:30 AM	-10°F
1:30 AM	2°F	2:35 AM	-11°F
1:35 AM	1°F	2:40 AM	-12°F
1:40 AM	0°F	2:45 AM	-13°F
1:45 AM	-1°F	2:50 AM	-14°F
1:50 AM	-2°F	2:55 AM	-15°F
1:55 AM	-3°F	3:00 AM	-16°F
2:00 AM	-4°F		

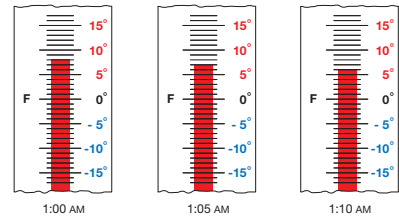
7. -28°F . The temperature goes down 1° every 5 minutes. It goes down 12° every hour. Since it is -16° at 3:00 AM, it will go down another 12° by 4:00 AM, so the temperature will be -28°F .
8. 28° warmer
9. The temperature fell 8°F .
10. 29°F

Homework

Temperature Time

Use a number line to represent and solve each temperature change problem.

1. It was -26°F at 10:00 this morning. The high temperature for the day was 17° higher than the temperature at 10:00 this morning. What was the high temperature for the day?
2. It was 20°F at 8:00 last night. The temperature dropped 13° overnight to reach the day's low temperature. What was the low temperature for the day?
3. The weather forecaster said that the current temperature is -15°F . The temperature is expected to drop 18 more degrees to reach the low temperature for the day. What is the low temperature expected to be?
4. The temperature outside is -14°F . How does the temperature need to change to reach 3°F ?
5. Put these temperatures in order from coldest to warmest.
 3°F 14°F -8°F 4°F -11°F
6. International Falls, Minnesota is one of the coldest places in the country. At night, the temperature might fall as quickly as one degree every five minutes. The thermometers shown begin to chart the falling temperature on such a night.



What's Below Zero

SG • Grade 5 • Unit 6 • Lesson 1 247

Student Guide - Page 247

- A. What is the temperature at 1:00 AM?
- B. What is the temperature at 1:05 AM?
- C. If the temperature keeps falling one degree every 5 minutes, what will the temperature be at 1:15 AM?
- D. Make a table like the one below. Record the temperature for five minute intervals beginning at 1:00 AM and ending at 3:00 AM.

International Falls

Time	Temperature
1:00 AM	8°F
1:05 AM	7°F
1:10 AM	6°F
1:15 AM	

7. If the temperature keeps falling at the same rate, what will the temperature be at 4:00 AM? How do you know?
8. By 10:00 AM the temperature had risen to 15 degrees. How much warmer is the temperature compared to 2:45 AM?
9. The dog needed to be let outside at 1:10 AM and stayed outside until 1:50 AM. How much did the temperature fall during the time the dog was outside?
10. If it is 17°F during the day and it falls to -12°F at night, how many degrees did it fall?



248 SG • Grade 5 • Unit 6 • Lesson 1

What's Below Zero

Student Guide - Page 248