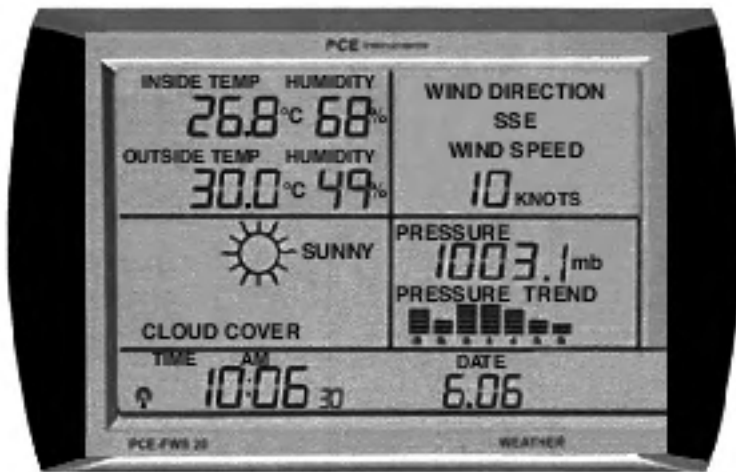


## Dewpoint

Base your answers to questions 1 on the photographs below and on your knowledge of Earth science. One photograph shows a digital device that recorded several weather variables. The second photograph shows two weather instruments, labeled A and B.

Digital Device



Weather Instruments

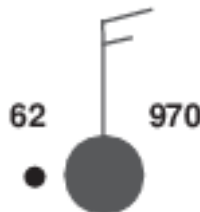


Adapted from: <https://www.pce-instruments.com/us/measuring-instruments/>

1 Based on the outside air temperature and relative humidity shown on the digital device, what is the approximate dewpoint for the time shown on the device?

- (1) 8°C
- (2) 12°C
- (3) 18°C
- (4) 31°C

2 The station model below shows several weather variables recorded at a particular location.

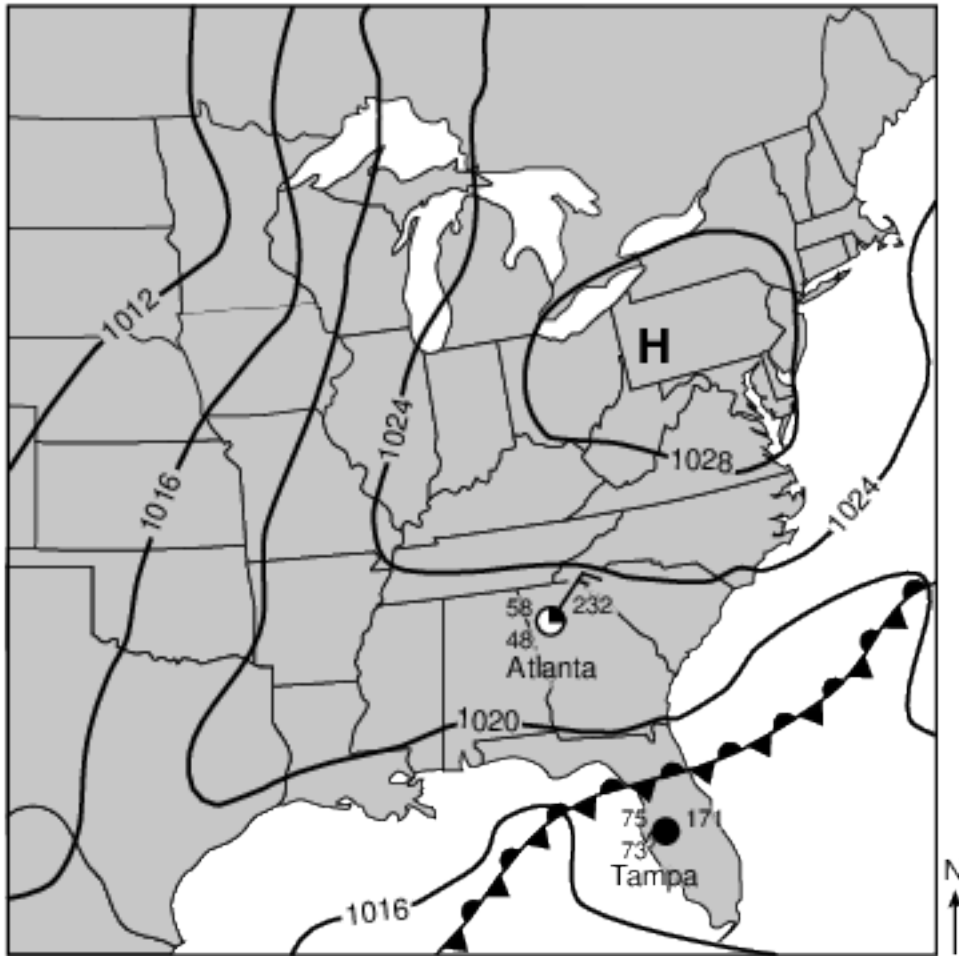


What was the most likely dewpoint at this location?

- (1) 32°F
- (2) 40°F
- (3) 61°F
- (4) 70°F

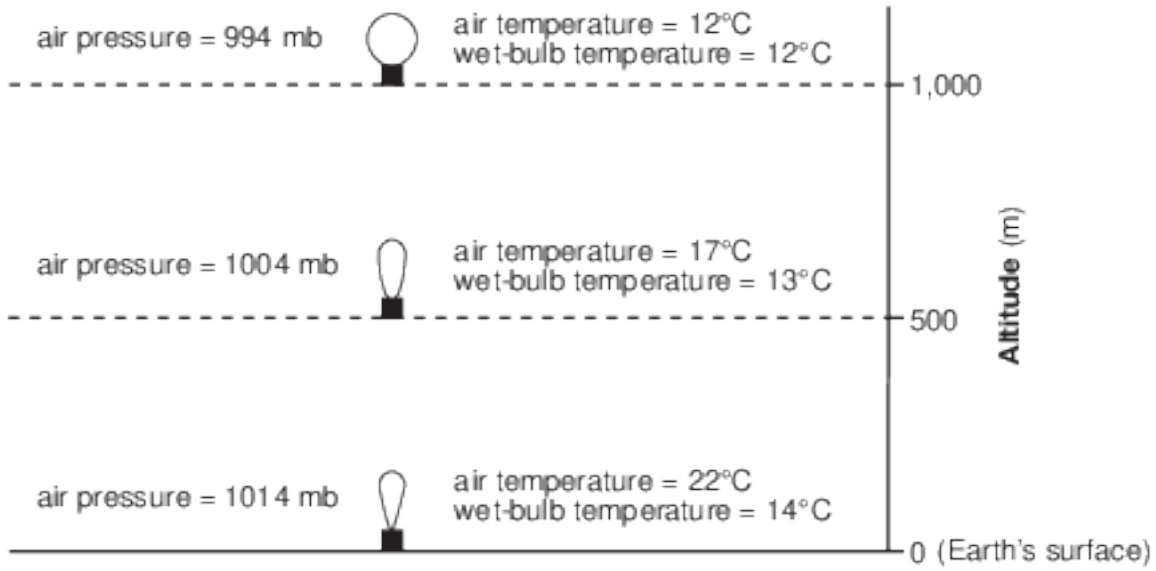
- 3 What is the dewpoint when the dry-bulb temperature is  $8^{\circ}\text{C}$  and the wet-bulb temperature is  $2^{\circ}\text{C}$ ?
- (1)  $28^{\circ}\text{C}$                       (3)  $3^{\circ}\text{C}$   
 (2)  $6^{\circ}\text{C}$                         (4)  $-9^{\circ}\text{C}$

Base your answers to questions 4 on the weather map below and on your knowledge of Earth science. On the weather map, the location of the center of a high-pressure system (H) and a front are shown. Isobar values are labeled in millibars (mb). Weather station models represent the weather conditions at Atlanta, Georgia, and Tampa, Florida.



- 4 Describe one piece of evidence shown on the map that indicates that Tampa, Florida, has a high probability of precipitation. [1]

Base your answers to questions 5 on the diagram below and on your knowledge of Earth science. The diagram represents a weather balloon as it rises from Earth's surface to 1000 meters (m). The air temperature and wet-bulb temperature values in degrees Celsius (°C) and the air pressure values in millibars (mb) are given for three altitudes.



(Not drawn to scale)

5 Determine the dewpoint and the relative humidity of the air at Earth's surface. [1]

Dewpoint: \_\_\_\_\_°C

Relative humidity: \_\_\_\_\_%

## Answer Keys

1 3

2 3

3 4

4 Allow 1 credit. Acceptable responses include, but are not limited to:

- — The dewpoint and air temperature are close together./high relative humidity
- — 100% cloud cover/overcast
- — Tampa is close to a front.
- — The air pressure is low.

5 Allow 1 credit if both dewpoint and relative humidity are correct.

- Dewpoint: 8°C
- Relative humidity: 40%