

Some examples

A person reading a European newspaper finds that the low temperature the night before in Stockholm was -16°C . What is the equivalent temperature in degrees Fahrenheit?

- A) 3.2°F
- B) -28.8°F
- C) 23.1°F
- D) 8.9°F

A laboratory experiment is to be run at 42.0 K. Express this temperature in Celsius to the nearest degree.

A) 74°C

B) 315°C

C) -231°C

D) 415°C

What is the maximum efficiency of an engine operating between a reservoir in which ice and water coexist, and a reservoir in which water and steam coexist? The pressure is constant at 1.0 atmosphere for both.

- A) 100%
- B) 27%
- C) 1.0%
- D) 0.27%

A fluid in an insulated, flexible bottle is heated by a high resistance wire and expands. If 9 kJ of heat is applied to the system and it does 5 kJ of work, how much does the internal energy change?

- A) 4 kJ
- B) 14 kJ
- C) -4 kJ
- D) 45 kJ

What is the average kinetic energy of an ideal gas at 842 K? (The value of Boltzmann's constant is 1.38×10^{-23} J/K.)

A) 1.74×10^{-20} J

B) 5.81×10^{-21} J

C) 1.18×10^{-17} J

D) 3.93×10^{-19} J