1 Numeric 1 point

The latent heat of melting of ice is 335 kJ/kg. What's the latent heat of melting in BTU/lb?

144

2 Numeric 1 point

What's the equivalent of 300 C in fahrenheit

572

unit conversion temperature

3 Numeric 1 point

What's the equivalent of $600^o R$ in $^o F$?

140

4 Numeric 1 point

The absolute temperature of a body is $1000^o R$. What's the equivalent temperature in ^oC?

282.2

5 Multiple Answer 1 point

Which of these are the correct values for the specific heat of water?

- [x] $4.2kJ\ kg^{-1}\ K^{-1}$
- [x] $4.2J\ g^{-1}\ K^{-1}$
- [x] $1BTU\ lb^{-1}\ F^{-1}$
- [x] $778lb-ft\ lb^{-1}\ F^{-1}$

temperature

6 Numeric 1 point

The latent heat of vaporization of water under 1 atm is 2260 kJ/kg. What's the latent heat of vaporization of water in BTU/lb?

975

unit conversion uscs +1

7 Numeric 1 point

A container of water contains 5 kg at 20C. How much heat (in kJ) needs to be added to bring the water to a boil?

1,674

energy | specific heat | +1

8 Multiple Answer 1 point

Which of the following temperatures are equivalent to 45C?

- [x] $113^o F$
- [x] 318K
- [ ] $550^o R$
- [ ] $128^o F$

unit conversion | temperature

9 Numeric 1 point

A tank 2 ft x 2 ft x 1 ft is half full of water at $50^o F$. It is to be heated to $100^o F$. How much heat (in BTU) must be supplied?

6,240

heat addition | temperature | +1

10 Numeric 1 point

Water flows through a pipe at a rate of 0.5 kg/s. The water enters the pipe at 10 C. It is supplied with 20 kW of heat. What's the temperature (in C) at the outlet?

19.52

11 Numeric 1 point

Water flow through a pipe of 15 mm diameter with a velocity of 2 m/s. It is surrounded by a heating blanket that is supposed to heat the water from 20C to 80C. How much energy (in kW) needs to be supplied in the heating blanket?

89.1

heat addition

12 Numeric 1 point

Water enters a 0.5 inch pipe at a temperature of 50 F and leaves the pipe at 75F. 200 BTU/s of heat are supplied to the water between the inlet and outlet. What's the velocity of the water in the pipe (in ft/s)?

0.65

heat addition uscs +1

13 Numeric 1 point

Water enters a 0.5 inch pipe at a temperature of 50 F and leaves the pipe at 75F. 200 BTU/s of heat are supplied to the water between the inlet and outlet. What's the volumetric flow rate of the water in the pipe (in gallons per minute?

57.7

14 Numeric 1 point

A utensil contains 3 kg of water at 20C is placed on a stove with a 2 kW burner. How long (in minutes) does the water take to get to a boil?

8.4

15 Numeric 1 point

A utensil contains 3 kg of water at 20C is placed on a stove with a 2 kW burner and heated for 15 minutes. How much water (in kg) will remain in the utensil at the end of 15 minutes?

2.65

16 Numeric 1 point

A utensil contains 3 kg of water at 20C is placed on a stove with a 2 kW burner and heated for 15 minutes. How long (in minutes) will it take all the water to boil away?

64.9

17 Numeric 1 point

A pump with an efficiency of 90% is supplied with 2 kW of electrical power. It operates between two large tanks, both at atmospheric pressures. The lower tank is 1 m below the level of the pump while the higher tank is 5 m above the level of the pump. What's the flow rate (in liters/minute) of the water in the pipe? Neglect losses in the pipe.

1,834

bernoulli pump

18 Numeric 1 point

A pump with an efficiency of 90% is supplied with 2 kW of electrical power. It operates between two large tanks, both at atmospheric pressures. The lower tank is 1 m below the level of the pump while the higher tank is 5 m above the level of the pump. The work due to losses in the pipe is equivalent to 5 J/kg. What's the flow rate (in liters/minute) of the water in the pipe?

1,691

pump, water, reservoir, be... pump +2

19 Numeric 1 point

5 lbs of water at 50F are to be frozen into ice at 32F in a refrigerator. How much heat (in BTU) must be extracted from the water by the refrigerator? The latent heat of fusion of water is 144 BTU/lb.

810

heat removal refrigeration

20 Numeric 1 point

5 lbs of water at 50F are to be frozen into ice at 32F in a refrigerator. If the coefficient of performance of the refrigerator is 3, how much work (in BTU) must be supplied to the refrigerator? The latent heat of fusion of water is 144 BTU/lb.

270