

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B474

Water is initially saturated with a quality of 50%, when a small amount of heat is added. Assuming the water pressure remains constant and the water remains saturated, water quality will _____ and water temperature will _____.

- A. increase; increase
- B. increase; remain the same
- C. remain the same; increase
- D. remain the same; remain the same

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B1074 (P674)

A liquid is saturated with 0% quality. Assuming pressure remains constant, the addition of a small amount of heat will...

- A. raise the liquid temperature above the boiling point.
- B. result in a subcooled liquid.
- C. result in vaporization of the liquid.
- D. result in a superheated vapor.

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B1874 (P1374)

Consider a water/steam mixture with a quality of 95%. If pressure remains constant and heat is added to the mixture, the temperature of the mixture will _____ and the quality of the mixture will _____. (Assume the mixture remains saturated.)

- A. increase; remain the same
- B. increase; increase
- C. remain the same; remain the same
- D. remain the same; increase

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B1974 (P1474)

If 1 lbm of liquid water is in a saturated condition at a constant pressure, the addition of 1 Btu will...

- A. raise the temperature of the water by 1 °F.
- B. vaporize a portion of the water.
- C. increase the density of the water.
- D. result in 1 °F of superheat.

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B3374 (P2874)

An open container holds one pound-mass of liquid water at saturated conditions and atmospheric pressure. The addition of 4 Btus will...

- A. result in 4°F of superheat.
- B. vaporize a portion of the water.
- C. increase the density of the water.
- D. raise the temperature of the water by 4°F.

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B3474

The temperature of a quantity of water is 212°F.

Which one of the following additional water parameters, when paired with the temperature, provides insufficient data to determine whether the water is a saturated liquid rather than a saturated liquid-vapor mixture?

- A. Enthalpy
- B. Entropy
- C. Pressure
- D. Specific volume

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.07 [2.7/2.8]
QID: B3574 (P1974)

A steam-water mixture is initially saturated with a quality of 50%, when a small amount of heat is added. Assuming pressure remains constant and the mixture remains saturated, mixture steam quality will _____ and mixture temperature will _____.

- A. increase; increase
- B. increase; remain the same
- C. remain the same; increase
- D. remain the same; remain the same

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B146

Given a constant pressure, any further addition of heat will result in an increase in the temperature of...

- A. saturated vapors and subcooled liquids.
- B. wet vapors and saturated vapors.
- C. saturated liquids and saturated vapors.
- D. subcooled liquids and wet vapors.

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B875 (P874)

Consider a water/steam mixture with a current quality of 99%. If pressure remains constant and heat is removed from the mixture, the temperature of the mixture will _____ and the quality of the mixture will _____. (Assume the mixture remains saturated.)

- A. decrease; increase
- B. decrease; decrease
- C. remain the same; increase
- D. remain the same; decrease

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B1274

A saturated vapor exists at 800 psia. If 500 Btu/lbm is removed from this saturated vapor at a constant pressure the...

- A. temperature will decrease.
- B. density will decrease.
- C. specific volume will decrease.
- D. enthalpy will increase.

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B1474

Which one of the following will decrease if heat is added to a saturated vapor at a constant pressure?

- A. Density
- B. Temperature
- C. Entropy
- D. Enthalpy

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B1574 (P1574)

Consider a steam-water mixture with a current quality of 79%. If pressure remains constant and heat is added to the mixture, the temperature of the mixture will _____ and the quality of the mixture will _____. (Assume the mixture remains saturated.)

- A. remain the same; increase
- B. remain the same; remain the same
- C. increase; increase
- D. increase; remain the same

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B2074 (P2074)

Consider a saturated water/steam mixture at 500°F with a quality of 90%. If the pressure of the mixture is decreased with no heat gain or loss, the temperature of the mixture will _____ and the quality of the mixture will _____. (Assume the mixture remains saturated.)

- A. decrease; decrease
- B. decrease; increase
- C. remain the same; decrease
- D. remain the same; increase

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B2174

Consider a saturated vapor at 470°F. If the pressure of the vapor remains constant and heat is added, vapor temperature will _____ and vapor quality will _____ .

- A. remain the same; remain the same
- B. remain the same; increase
- C. increase; remain the same
- D. increase; increase

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.09 [2.5/2.6]
QID: B2975 (P2974)

Consider a shutdown reactor vessel containing a saturated water/vapor mixture at 500°F. The mixture is currently stable with no net heat gain or loss occurring. Reactor vessel water level is 100 inches above the top of the fuel bundles.

If a leak near the bottom of the vessel results in a loss of 10% of the liquid volume from the vessel, the temperature of the mixture will _____, and the overall quality of the mixture will _____. (Assume the mixture remains saturated.)

- A. decrease; increase
- B. decrease; decrease
- C. remain the same; increase
- D. remain the same; decrease

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.12 [2.5/2.6]
QID: B141

What is the approximate quality of wet steam leaving the reactor at 530 psig with an enthalpy of 928.9 Btu/lbm?

- A. 25%
- B. 37%
- C. 63%
- D. 75%

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.12 [2.5/2.6]
QID: B2375 (P2374)

Which one of the following describes the effect of removing heat from a steam-water mixture that is in a saturated condition? (Assume the mixture remains saturated.)

- A. Temperature will increase.
- B. Temperature will decrease.
- C. Quality will increase.
- D. Quality will decrease.

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.12 [2.5/2.6]
QID: B2874 (P1976)

Which one of the following is the approximate steam quality of a steam-water mixture at 467°F with an enthalpy of 1000 Btu/lbm?

- A. 24%
- B. 27%
- C. 73%
- D. 76%

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.12 [2.5/2.6]
QID: B3075 (P3074)

The temperature of a saturated steam-water mixture is 467°F.

Which one of the following additional parameter values, when paired with the temperature, provides insufficient data to determine the approximate steam quality of the mixture?

- A. Pressure at 499.96 psia
- B. Enthalpy at 977.33 Btu/lbm
- C. Entropy at 1.17 Btu/lbm - °R
- D. Specific volume at 0.817 ft³/lbm

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.16 [2.8/2.8]
QID: B74

Given an operating reactor at 985 psig and a feed-water inlet temperature of 400°F, what will be feed-water subcooling?

- A. 136.6°F
- B. 140.6°F
- C. 144.6°F
- D. 148.6°F

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.16 [2.8/2.8]
QID: B775

What effect will occur if heat is removed from water that is in a subcooled condition?

- A. Temperature of the water will increase.
- B. Enthalpy of the water will decrease.
- C. Quality of the water will increase.
- D. Density of the water will decrease.

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.16 [2.8/2.8]
QID: B2973 (P2975)

An open vessel contains one pound-mass of water at 206°F and atmospheric pressure. Which one of the following will be caused by the addition of 3 Btu to the water?

- A. The water temperature will rise by 3°F.
- B. 3% of the water mass will vaporize.
- C. The water density will decrease by 3%.
- D. The water will become superheated by 3°F.

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3175 (P3175)

A steam line is carrying saturated steam vapor at 500 psia and 467°F. Approximately how much heat addition to the steam vapor is necessary to achieve 60°F of superheat?

- A. 31 Btu/lbm
- B. 45 Btu/lbm
- C. 58 Btu/lbm
- D. 71 Btu/lbm

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.22 [2.9/3.2]
QID: B1377

Saturated steam undergoes an ideal expansion process in an ideal turbine from 1000 psia to 28 inches Hg vacuum. Approximately how much specific work is being performed by the turbine?

- A. 1193 Btu/lbm
- B. 775 Btu/lbm
- C. 418 Btu/lbm
- D. 388 Btu/lbm

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.22 [2.9/3.2]
QID: B1175 (P1675)

What is the temperature of a water-steam mixture that has an enthalpy of 1150 Btu/lbm and a quality of 95%?

- A. 210°F
- B. 270°F
- C. 360°F
- D. 420°F

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.22 [2.9/3.2]
QID: B1577

Saturated steam undergoes an ideal expansion process in an ideal turbine from 294 psig to 27 inches Hg vacuum. Approximately how much specific work is being performed by the turbine?

- A. 1203 Btu/lbm
- B. 418 Btu/lbm
- C. 343 Btu/lbm
- D. 308 Btu/lbm

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.22 [2.9/3.2]
QID: B1675 (N/A)

Which one of the following is the reactor coolant heatup rate, assuming an initial reactor pressure of 470 psig and a reactor pressure of 980 psig 2 hours later?

- A. 40°F/hr
- B. 60°F/hr
- C. 80°F/hr
- D. 120°F/hr

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B75

The saturation pressure corresponding to 400°F is...

- A. 232.6 psia.
- B. 247.3 psia.
- C. 262.0 psia.
- D. 444.6 psia.

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B103

An operator suspects that a steam line temperature instrument reading is not correct. A recently calibrated pressure gauge sensing steam pressure for the same steam line indicates 351 psig.

Assuming the system is operating at saturation pressure, what should the temperature instrument indicate?

- A. 424°F
- B. 428°F
- C. 432°F
- D. 436°F

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B139

The saturation temperature for steam at a pressure of 785 psig is approximately...

- A. 510°F.
- B. 513°F.
- C. 515°F.
- D. 518°F.

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B190

Which one of the following is the approximate quality of steam leaving a cyclone separator at 985 psig and 1186 Btu/lbm?

- A. 95%
- B. 96%
- C. 97%
- D. 99%

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B275 (P275)

The saturation pressure for water at 328°F is...

- A. 85 psig.
- B. 100 psig.
- C. 115 psig.
- D. 130 psig.

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B375

Saturated steam at 250 psia enters turbine X. Superheated steam at 250 psia and 500°F enters turbine Y. Both turbines are 100% efficient and exhaust to a condenser at 1 psia.

Which one of the following lists the percentage of moisture at the exhaust of turbines X and Y?

- A. Turbine X = 24.5%; turbine Y = 20.8%
- B. Turbine X = 26.3%; turbine Y = 13.0%
- C. Turbine X = 24.5%; turbine Y = 13.0%
- D. Turbine X = 26.3%; turbine Y = 20.8%

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B382

Cooling water exits a fuel channel with an enthalpy of 1195 Btu/lbm at a reactor pressure of 1050 psig. What is the state of the fluid at the exit of the fuel channel?

- A. Saturated
- B. Superheated
- C. Compressed
- D. Subcooled

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B974

Which one of the following sets of water parameters will result in the highest fluid quality?

- A. 500°F; 1100 Btu/lbm
- B. 320°F; 1070 Btu/lbm
- C. 200°F; 1040 Btu/lbm
- D. 160°F; 960 Btu/lbm

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B975

Which one of the following represents the value of enthalpy (h) for steam at 235.3 psig and 500°F?

- A. $h = 1201.1$, Btu/lbm
- B. $h = 1202.2$, Btu/lbm
- C. $h = 1263.5$, Btu/lbm
- D. $h = 1286.6$, Btu/lbm

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B1375

A steam/water mixture leaving the reactor core has the following parameter values:

Temperature = 550.5°F
Pressure = 1035 psig
Quality = 14.5%

Which one of the following is the enthalpy of the steam-water mixture?

- A. 610 Btu/lbm
- B. 643 Btu/lbm
- C. 720 Btu/lbm
- D. 860 Btu/lbm

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B1575

A steam-water mixture leaving the reactor core has the following parameter values:

Temperature = 550.5°F
Pressure = 1035 psig
Quality = 20%

Which one of the following is the approximate enthalpy of the steam-water mixture?

- A. 641 Btu/lbm
- B. 678 Btu/lbm
- C. 751 Btu/lbm
- D. 1063 Btu/lbm

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B1776 (P1775)

Which one of the following is the approximate amount of heat required to convert 3 lbm of water at 100°F and 100 psia to a saturated vapor at 100 psia?

- A. 888.6 Btu
- B. 1119.2 Btu
- C. 2665.8 Btu
- D. 3357.6 Btu

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2075 (P2077)

A plant is operating at 50% power. Main steam at a main turbine steam inlet valve has the following properties:

Pressure: 900 psia
Quality: 98%

The main turbine steam chest pressure is 400 psia. Which one of the following is the approximate quality of the steam in the steam chest?

- A. 97%
- B. 98%
- C. 99%
- D. 100%

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2275 (P2275)

1.0 x 10⁶ lbm/hr saturated steam at 30% steam quality is leaving a main turbine and entering a condenser at 2.0 psia. Condensate is entering the hotwell at 118°F.

Which one of the following is the approximate condenser heat transfer rate?

- A. 3.1 x 10⁸ Btu/hr
- B. 5.8 x 10⁸ Btu/hr
- C. 7.2 x 10⁸ Btu/hr
- D. 9.9 x 10⁸ Btu/hr

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2374 (P2375)

Which one of the following is the approximate amount of heat required to convert 2.0 lbm of water at 100°F and 100 psia to a saturated vapor at 100 psia?

- A. 1119 Btu
- B. 1187 Btu
- C. 2238 Btu
- D. 2374 Btu

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2474

Turbine X is an ideal steam turbine that exhausts to a condenser at 1.0 psia. Turbine X is driven by saturated steam (100% quality) at 500 psia. Which one of the following lists the approximate specific work output of turbine X and moisture content of the steam exiting turbine X?

<u>Specific Work</u>	<u>Moisture Content</u>
A. 388 Btu/lbm	72%
B. 388 Btu/lbm	28%
C. 817 Btu/lbm	72%
D. 817 Btu/lbm	28%

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2475 (P2475)

A steam line is carrying steam at 500 psia and 507°F. Approximately how much ambient heat loss is required before moisture formation occurs in the steam line?

- A. 31 Btu/lbm
- B. 45 Btu/lbm
- C. 58 Btu/lbm
- D. 71 Btu/lbm

ANSWER: A

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2575 (P2575)

Which one of the following is the approximate amount of heat required to convert 2.0 lbm of water at 100°F and 100 psia to a superheated vapor at 400°F and 100 psia?

- A. 1119 Btu
- B. 1159 Btu
- C. 2238 Btu
- D. 2318 Btu

ANSWER: D.

TOPIC: 293003

KNOWLEDGE: K1.23 [2.8/3.1]

QID: B2675 (P2675)

What is the specific heat (Btu/lbm-°F) of water at 300°F and 100 psia?

A. 1.025 Btu/lbm-°F

B. 1.125 Btu/lbm-°F

C. 1.175 Btu/lbm-°F

D. 1.250 Btu/lbm-°F

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2774 (P2778)

The theoretical maximum efficiency of a steam cycle is given by the equation:

$$\text{Eff}_{\text{thmax}} = (1 - T_{\text{out}}/T_{\text{in}}) \times 100\%,$$

where T_{out} is the absolute temperature for heat rejection and T_{in} is the absolute temperature for heat addition. (Fahrenheit temperature is converted to absolute temperature by adding 460°.)

A plant is operating with a stable reactor vessel pressure of 900 psia. What is the approximate theoretical maximum steam cycle efficiency this plant can achieve by establishing its main condenser vacuum at 1.0 psia?

- A. 35%
- B. 43%
- C. 65%
- D. 81%

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2776 (P2775)

With the plant operating near rated power, air inleakage into the main condenser causes main condenser pressure to increase from 1.0 psia to 2.0 psia.

Given the following:

- Initial main condenser condensate depression was 4°F.
- After the plant stabilizes, with main condenser pressure at 2.0 psia, main condenser condensate depression is 2°F.

Which one of the following is the approximate increase in main condenser specific heat rejection needed to restore condensate depression to 4°F?

- A. 2 Btu/lbm
- B. 4 Btu/lbm
- C. 8 Btu/lbm
- D. 16 Btu/lbm

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B2875

A plant is operating at a low power level. Main steam at the main turbine steam inlet valve has the following properties:

Pressure: 900 psia
Quality: 99%

The main turbine steam chest pressure is 300 psia. Which one of the following is the approximate temperature of the steam in the steam chest?

- A. 417°F
- B. 439°F
- C. 496°F
- D. 532 °F

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3074 (P3077)

A reactor plant is operating at 100% rated power. Steam is escaping to atmosphere through a flange leak in a steam supply line to the low pressure section of the main turbine.

Given:

- Steam line pressure is 300 psia.
- Steam line temperature is 440°F.

What is the approximate temperature of the steam as it reaches atmospheric pressure?

- A. 212°F
- B. 268°F
- C. 322°F
- D. 358°F

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3274 (P3275)

An ideal main turbine generator (MTG) is producing 1000 MW of electrical power while being supplied with 100% quality steam at 920 psig. Steam supply pressure is then gradually increased to 980 psig at the same quality. Assume turbine control valve position and condenser vacuum remain the same.

Which one of the following describes why the MTG output increases as steam pressure increases?

- A. Each lbm of steam entering the turbine has a higher specific heat.
- B. Each lbm of steam entering the turbine has a higher specific enthalpy.
- C. Each lbm of steam passing through the turbine expands to fill a greater volume.
- D. Each lbm of steam passing through the turbine performs increased work in the turbine.

ANSWER: D.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3275

A nuclear power plant is shutdown at normal operating temperatures and pressures. Reactor coolant temperature is being controlled by dumping main steam (100% quality) to the main condenser.

Given the following:

- Main steam pressure: 1000 psia
- Main condenser vacuum: 28"Hg

Which one of the following is the approximate temperature of the steam as it enters the main condenser?

- A. 102°F
- B. 212°F
- C. 295°F
- D. 358°F

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3475 (P3475)

Which one of the following is the approximate amount of heat required to convert 2 lbm of water at 100°F and 100 psia to a saturated vapor at 100 psia?

- A. 559.6 Btu
- B. 1119.2 Btu
- C. 2238.4 Btu
- D. 3357.6 Btu

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3575 (P3577)

Saturated steam (100% quality) at 1000 psia is being supplied to the inlet of a partially-open steam throttle valve on a main turbine. Pressure in the steam chest downstream of the throttle valve is 150 psia. Assume a typical throttling process with no heat gain or loss to/from the steam.

When compared to the conditions at the inlet to the throttle valve, which one of the following describes the conditions in the steam chest for specific enthalpy and entropy?

- | <u>Steam Chest
Specific Enthalpy</u> | <u>Steam Chest
Specific Entropy</u> |
|--|---|
| A. About the same | About the same |
| B. About the same | Significantly higher |
| C. Significantly lower | About the same |
| D. Significantly lower | Significantly higher |

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3675 (P3677)

A nuclear plant is shutdown and steam is escaping to atmosphere through a leak in a main steam line. If main steam line pressure is 300 psia, what is the approximate temperature of the steam as it reaches atmospheric pressure? (Assume the steam in the main steam line has a quality of 100%.)

- A. 212°F
- B. 268°F
- C. 322°F
- D. 358°F

ANSWER: C.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3774 (P3775)

A 100 ft³ vessel contains a saturated water-steam mixture at 1,000 psia. The water portion occupies 30 ft³ and the steam portion occupies the remaining 70 ft³. What is the approximate total mass of the mixture in the vessel?

- A. 1,547 lbm
- B. 2,612 lbm
- C. 3,310 lbm
- D. 4,245 lbm

ANSWER: A.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B3938 (P3939)

Main steam is being used to reheat high-pressure (HP) turbine exhaust in a moisture separator reheater (MSR).

Given:

- The HP turbine exhaust enters the MSR reheater section as saturated steam (100% quality).
- The exhaust enters and exits the reheater section at 280 psia and a flow rate of 1.0E6 lbm/hr.
- The main steam heat transfer rate in the reheater section is 42.1E6 Btu/hr.

Which one of the following is the approximate temperature of the HP turbine exhaust leaving the reheater section of the MSR?

- A. 450°F
- B. 475°F
- C. 500°F
- D. 525°F

ANSWER: B.

TOPIC: 293003
KNOWLEDGE: K1.23 [2.8/3.1]
QID: B4038

A 100 ft³ vessel contains a saturated water-steam mixture at 1,000 psia. The water portion occupies 70 ft³ and the steam portion occupies the remaining 30 ft³. What is the approximate total mass of the mixture in the vessel?

- A. 1,547 lbm
- B. 2,612 lbm
- C. 3,310 lbm
- D. 4,245 lbm

ANSWER: C.