

MSC 1012 Practice questions Chapter 5 set 5

Combining Specific Heat and Latent Heat

Specific Heats:

Ice:	$2100 \text{ J kg}^{-1} \text{ K}^{-1}$
Liquid Water:	$4186 \text{ J kg}^{-1} \text{ K}^{-1}$
Steam:	$2100 \text{ J kg}^{-1} \text{ K}^{-1}$

Latent Heats:

Heat of fusion:	335 kJ kg^{-1}
Heat of vaporization:	2260 kJ kg^{-1}

1. Calculate the heat needed to increase the temperature of 350 kg of water from 50°C to steam at 130°C .

ANS: _____

2. Calculate the heat needed to increase the temperature of 230 g of ice at -25°C to steam at 150°C .

ANS: _____

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1)

m/kg	c or L	T(f)	T(i)	Delta T	kJ
350	4.186	100	50	50	73255
350	2260				791000
350	2.1	130	100	30	22050
					886305

2)

0.23	2.1	0	-25	25	12.075
0.23	335				77.05
0.23	4.186	100	0	100	96.278
0.23	2260				519.8
0.23	2.1	150	100	50	24.15
					729.353