

GCSE Physics: Specific Latent Heat Calculation Questions

These questions test your understanding of energy transfers during changes of state. Use the equation ($E = mL$), where (E) is energy transferred, (m) is mass and (L) is the specific latent heat. Most answers can be calculated using standard units, with a few questions requiring the use of standard form.

1. An ice cube absorbs 167000 J of energy as it melts. The specific latent heat of fusion of ice is 334000 J/kg. Calculate the mass of ice melted.
2. A freezer removes 668000 J of energy from water as it freezes. The specific latent heat of fusion of water is 334000 J/kg. Calculate the mass of water frozen.
3. A kettle supplies 452000 J of energy to boiling water. The specific latent heat of vaporisation of water is 2260000 J/kg. Calculate the mass of water turned into steam.
4. A steam engine produces 0.80 kg of steam. The specific latent heat of vaporisation of water is 2260000 J/kg. Calculate the energy required.
5. A block of ice with a mass of 2.5 kg melts completely. The specific latent heat of fusion of ice is 334000 J/kg. Calculate the energy required.
6. A factory uses 6780000 J of energy to produce steam from water. The specific latent heat of vaporisation of water is 2260000 J/kg. Calculate the mass of steam produced.
7. A cooling system removes 1002000 J of energy from water as it freezes. The specific latent heat of fusion of water is 334000 J/kg. Calculate the mass of water frozen.
8. A power station converts 5.0 kg of water into steam. The specific latent heat of vaporisation of water is 2260000 J/kg. Calculate the energy required. Give your answer in standard form.

9. An iceberg absorbs 1.67×10^7 J of energy from the sea. The specific latent heat of fusion of ice is 334000 J/kg. Calculate the mass of ice melted.
10. A boiler supplies 1.695×10^7 J of energy to boiling water. The specific latent heat of vaporisation of water is 2260000 J/kg. Calculate the mass of water converted into steam.