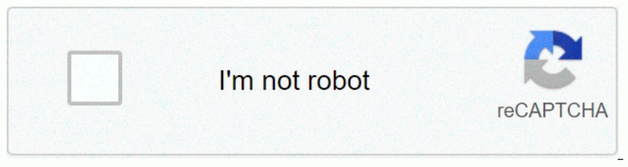

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Latent heat of fusion and vaporization worksheet

In this worksheet, we will practice using the formula E = mL to calculate the amount of energy absorbed or released by changing the state of the material. Q4: Which of the following is the correct formula for the energy needed to vaporad the substance? E represents the required energy, m represents the mass of the substance, L represents a specific latent evaporation heat, c represents a specific thermal capacity, and Δθ a change in temperature. AE=mLΔθ BE=mcΔθ CE=mL DE=mL EE=mc Q6: 565 kJ of energy is used to melt a zinc block that was already at melting temperature when its energy was delivered. Find the mass of the zinc block, using a value of 113 kJ/kg for specific latent heat of zinc fusion. Q8: 30 g of molten gold is allowed to be fixed. It releases 1,890 J of energy into the environment as it does so. What is the specific latent heat of fusion for gold? Q9: The metal at the melting temperature is heated until all metal becomes liquid. It takes 41 kJ for the metal to completely dissolve, and its mass is 0.2 kg. What is the specific latent heat of metal fusion? Q10: The substance, which is initially at 20∘C and solid, is heated. The temperature of the substance is recorded over time, and this data is displayed in the chart. What is the melting point of the substance? Q11: A 10kg block of ice turns into water vapor. The ice block starts at −20∘C; first it dissolves completely, then heats to 100∘C. Find the energy needed to do that. Use the value 2.108/·JkgC∘ for specific ice heat capacity and use the value 4.184/·JkgC∘ for specific water thermal capacity. Use a value of 334 kJ/kg for latent water fusion heat and use a value of 2,258 kJ/kg for latent heat evaporation of water. Give your answer to the nearest megajoule. Q12: The pan is filled with 2 kg of water at a temperature of 100∘C. If the pan can transfer energy to water at a speed of 2.5 kW, determine how long it will take to evaporate all the water in the pan. Use a value of 2,258 kJ/kg for specific latent heat evaporation of water. Give your answer to the nearest minute. Q13: Counterfeits can transfer 200 kJ of energy to metal to heat it before running out of fuel. Forging can be placed levers made of silver or gold to dissolve them. If the metal that will melt is already at melting temperature when placed in forging, determine how much more gold than silver kova can melt before it runs out of fuel. Use a value of 63 kJ/kg for specific latent gold fusion heat and use a value of 111 kJ/kg for specific latent fusion heat for silver. Give your answer to one decimal place. Q14: Determine how much energy is needed to dissolve 2 kg of ice. Use value 334 for specific latent heat fusion ice. Q15: The substance, which is initially at 140∘C and liquid, is allowed to cool down. The temperature of the substance is recorded over time, and this data is displayed in the chart. What is the melting point of the substance? Q16: Which of the following is the correct formula for the energy needed to melt the substance? E represents the necessary energy, m represents the mass of the substance, and L is a specific latent heating of fusion. AE=m+L BE=mL CE=mL DE=mL EE=L Q17: The substance, which is initially at 90∘C and is liquid, is heated. The temperature of the substance is recorded over time, and this data is displayed in the chart. What is the boiling point of the substance? In this worksheet, we will practice using the formula E = mL to calculate the amount of energy absorbed or released by changing the state of the material. Q4: Which of the following is the correct formula for the energy needed to vaporad the substance? E represents the required energy, m represents the mass of the substance, L represents a specific latent evaporation heat, c represents a specific thermal capacity, and Δθ a change in temperature. 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Substance?