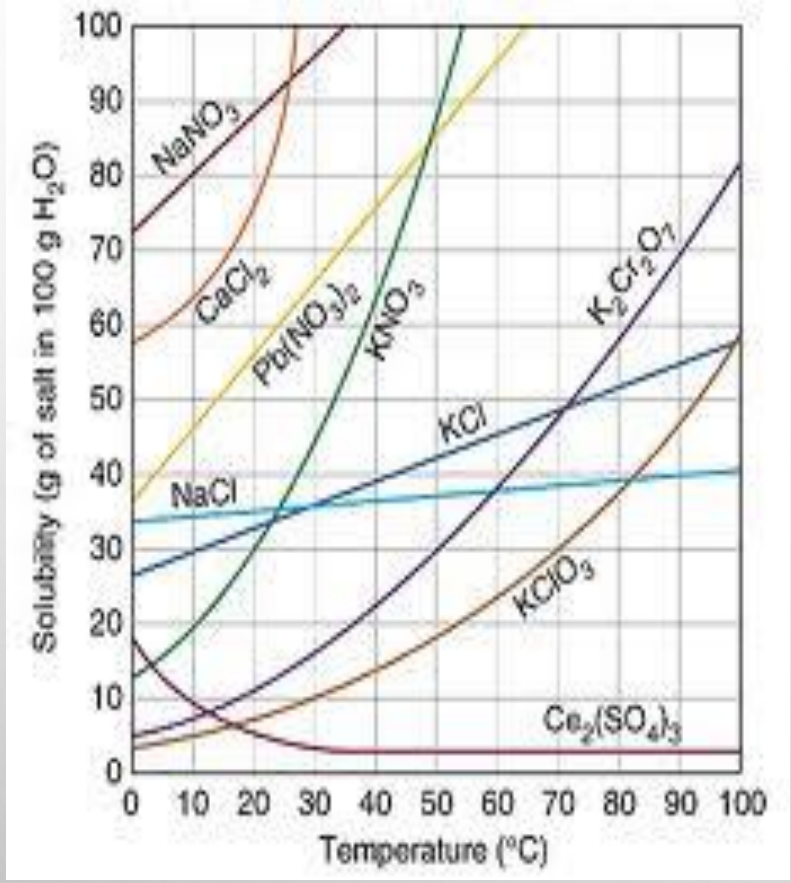
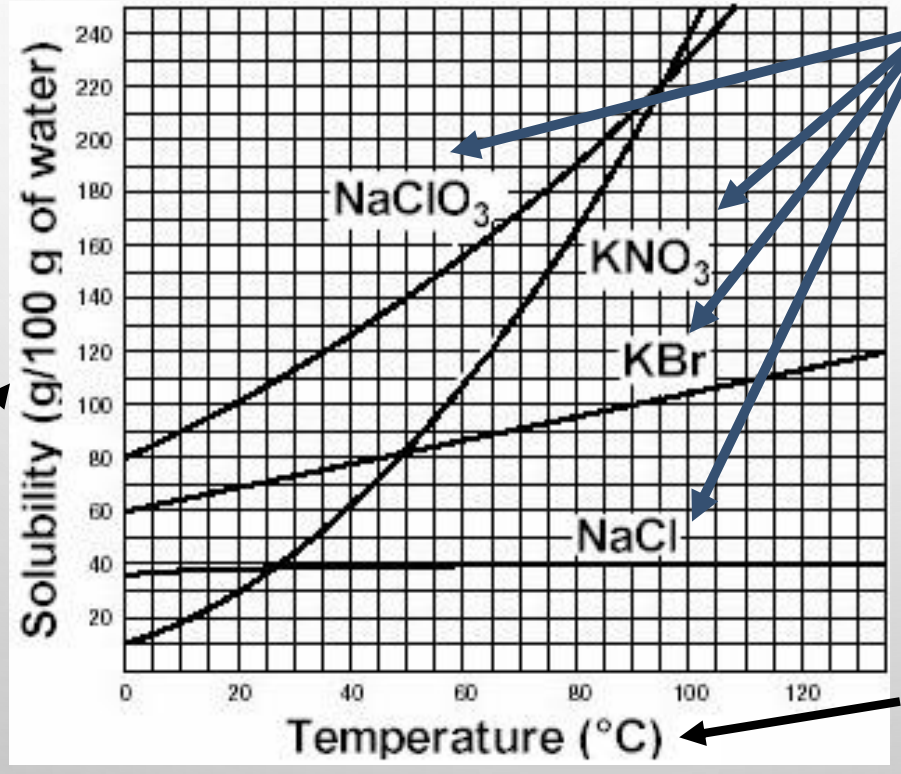


SOLUBILITY CURVES

HOW TO INTERPRET A GRAPHICAL REPRESENTATION OF SOLUTE IN SOLVENT.

SOLUBILITY CURVE

- **SOLUBILITY CURVE** – A GRAPHICAL REPRESENTATION OF THE AMOUNT OF SUBSTANCE THAT CAN DISSOLVE INTO 100 G OF WATER AT A SPECIFIC TEMPERATURE (CELSIUS)



Substances:
Compound being dissolved in water (H_2O)

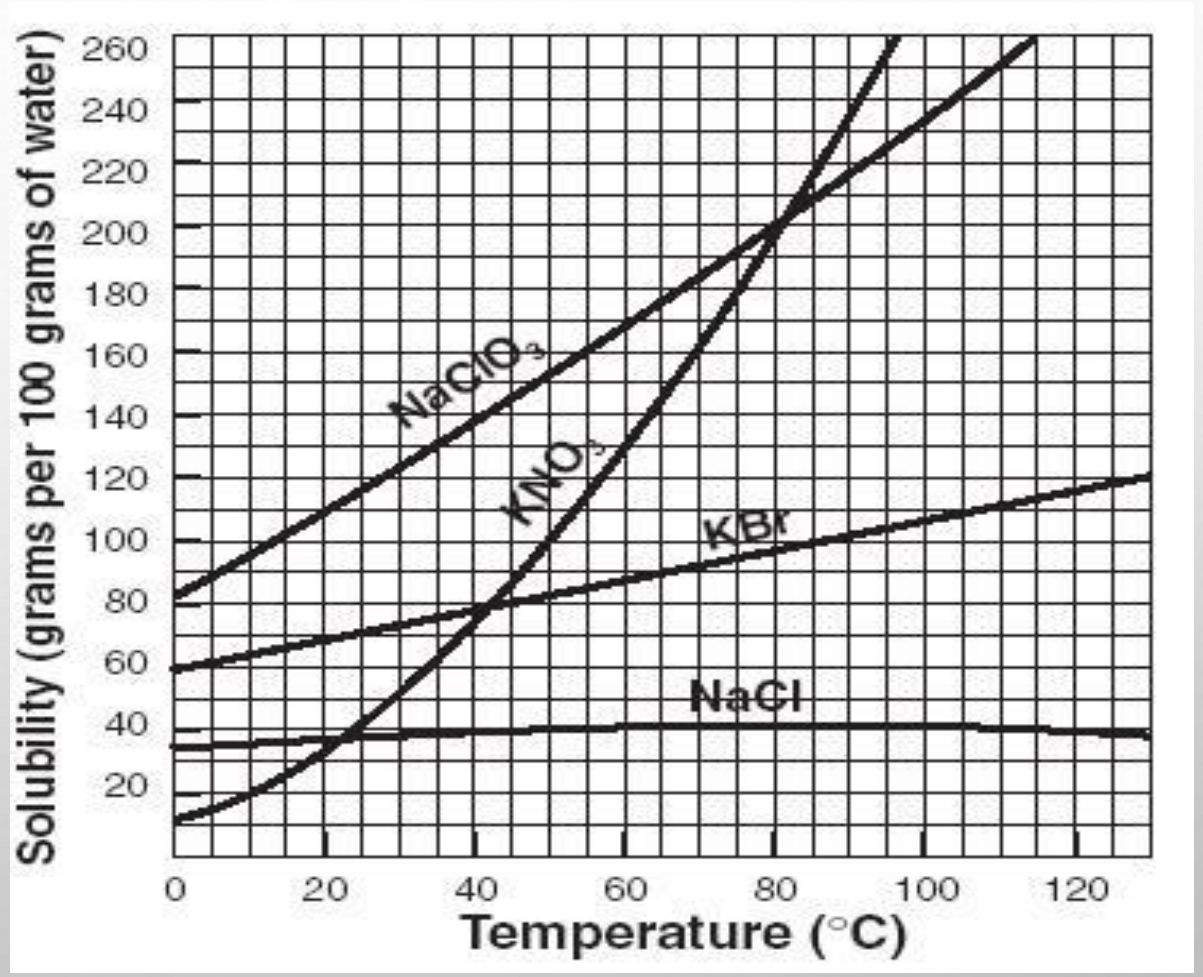
Y-axis:
Solubility of substance (g/100 g H_2O)

X-axis:
Temperature (Celsius)

INTERPRETING A SOLUBILITY CURVE

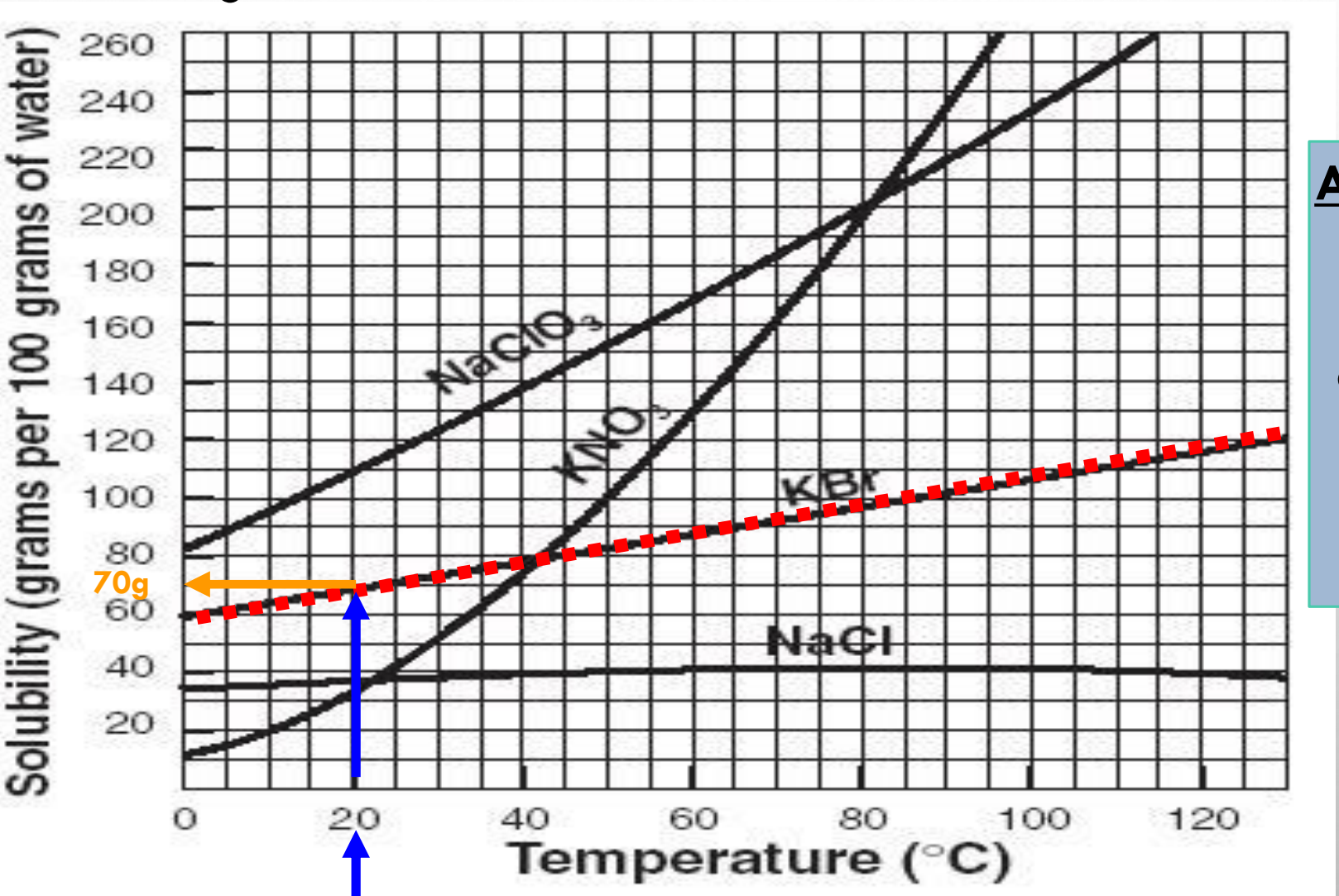
- EACH POINT ON THE SOLUBILITY CURVE SHOWS HOW MANY GRAMS CAN BE DISSOLVED AT A SPECIFIC TEMPERATURE:

Each line shows how much substance can dissolve as a **function** of the temperature of the solution.



USING A SOLUBILITY CURVE

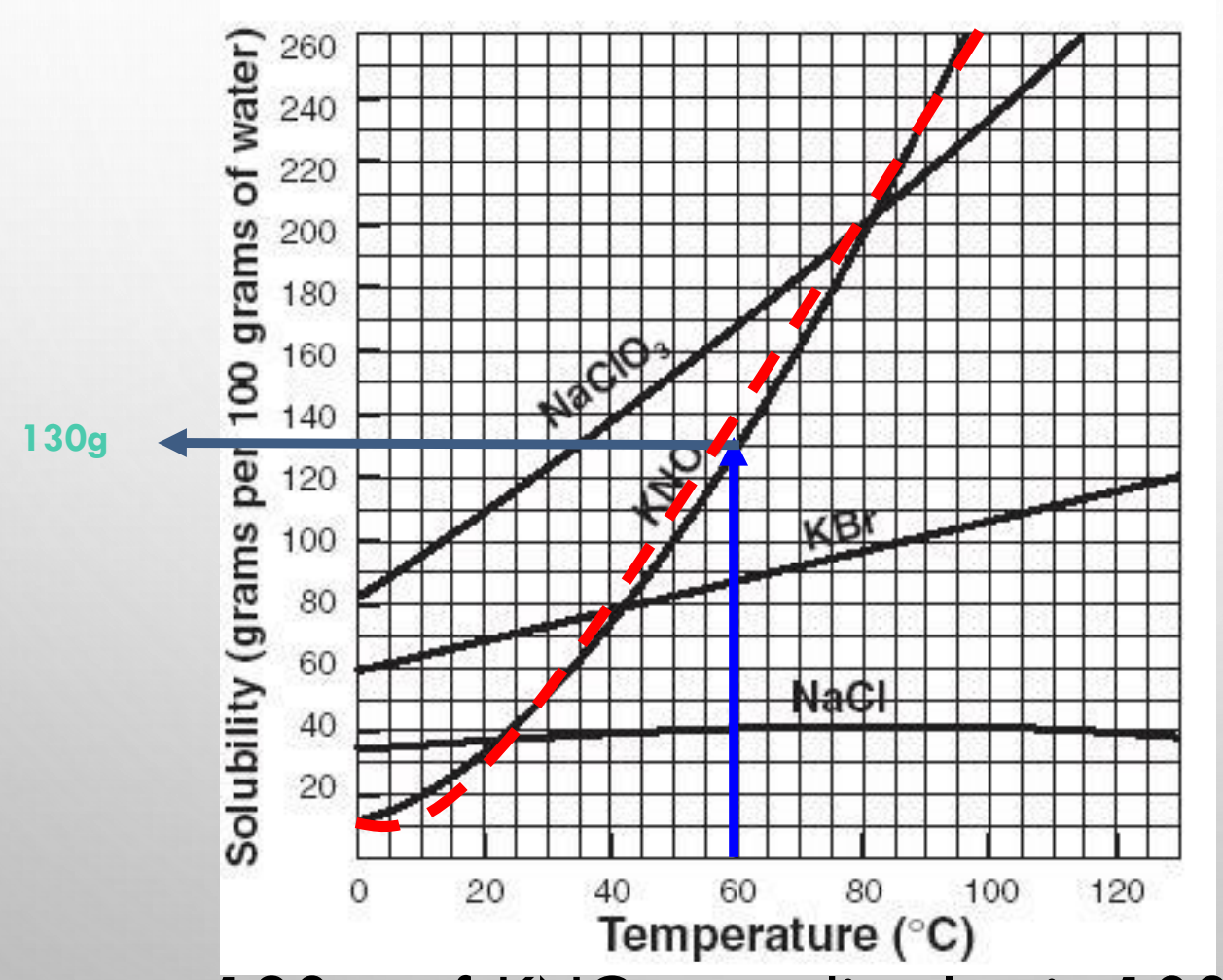
How many grams of potassium bromide (KBr) can dissolve in 100 grams of water at 20°C?



Answer: 70 grams of KBr can dissolve in 100g of water at 20°C

PRACTICE USING SOLUBILITY CURVE

How many grams of potassium nitrate (KNO_3) can dissolve in 100 g of water at 60°C?

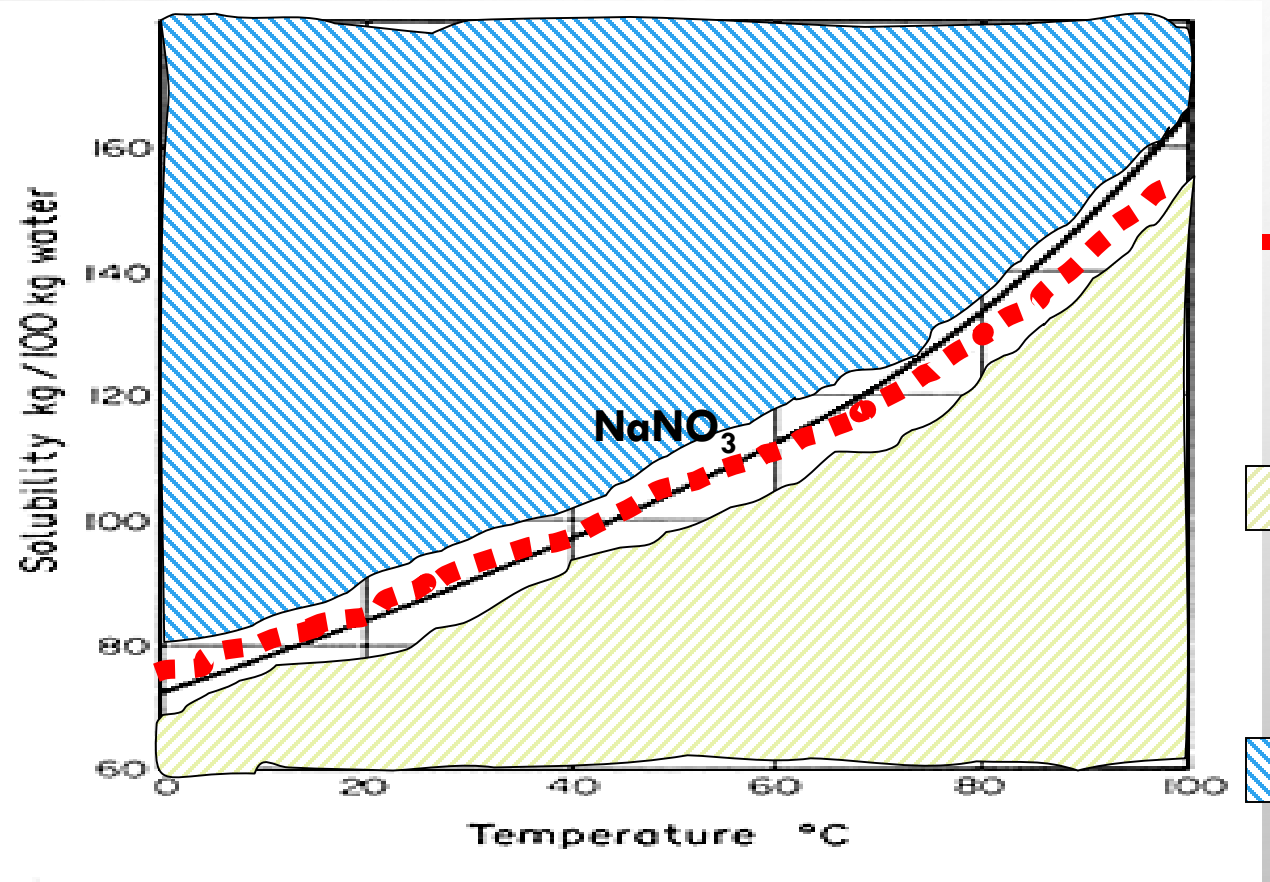


Answer: 130 g of KNO_3 can dissolve in 100 g of H_2O

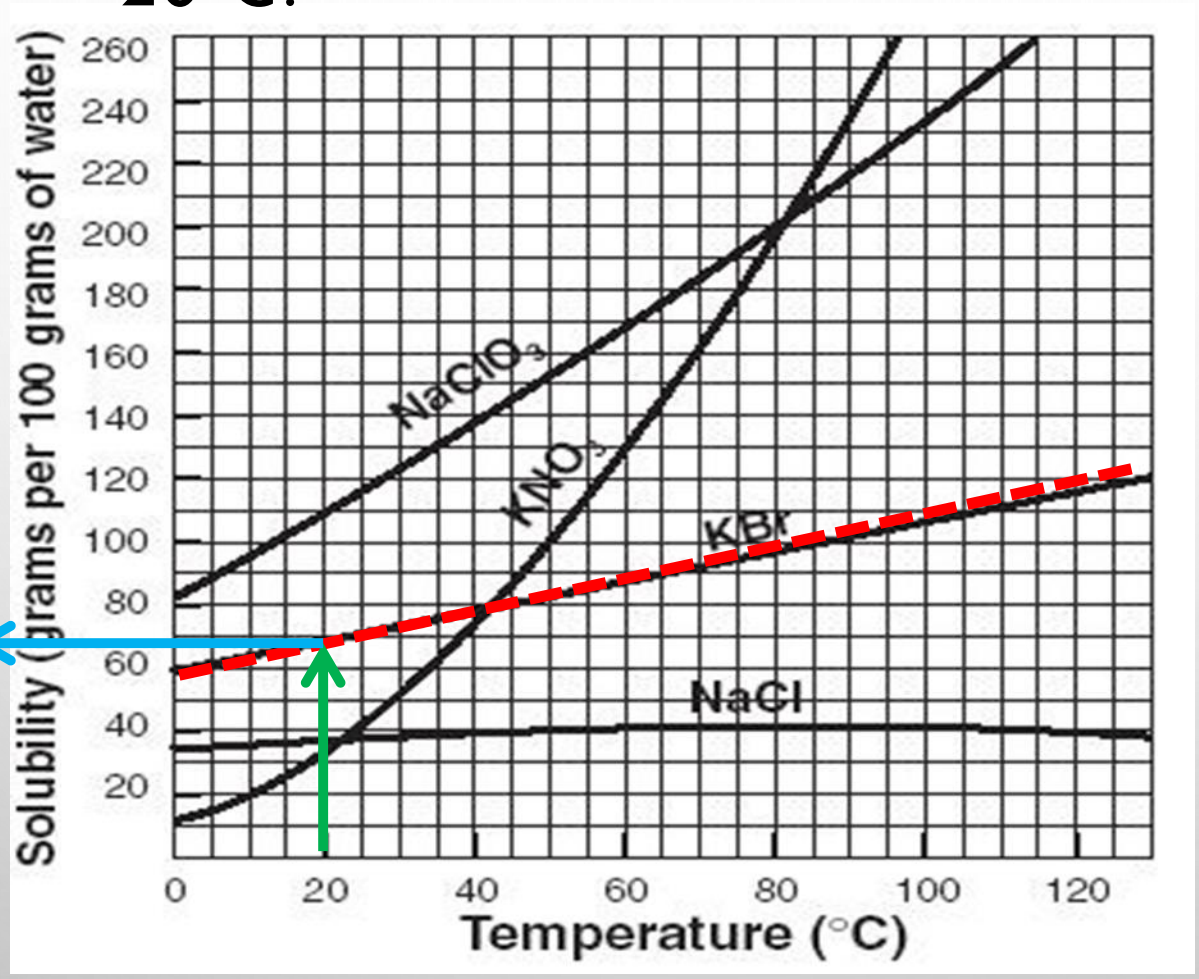
SATURATED / UNSATURATED / SUPERSATURATED

REVIEW: HOW WE NUMERICALLY DESCRIBE SATURATION

- SATURATED: SOLUTE = SOLUBILITY
- UNSATURATED: SOLUTE < SOLUBILITY
- SUPERSATURATED: SOLUTE > SOLUBILITY

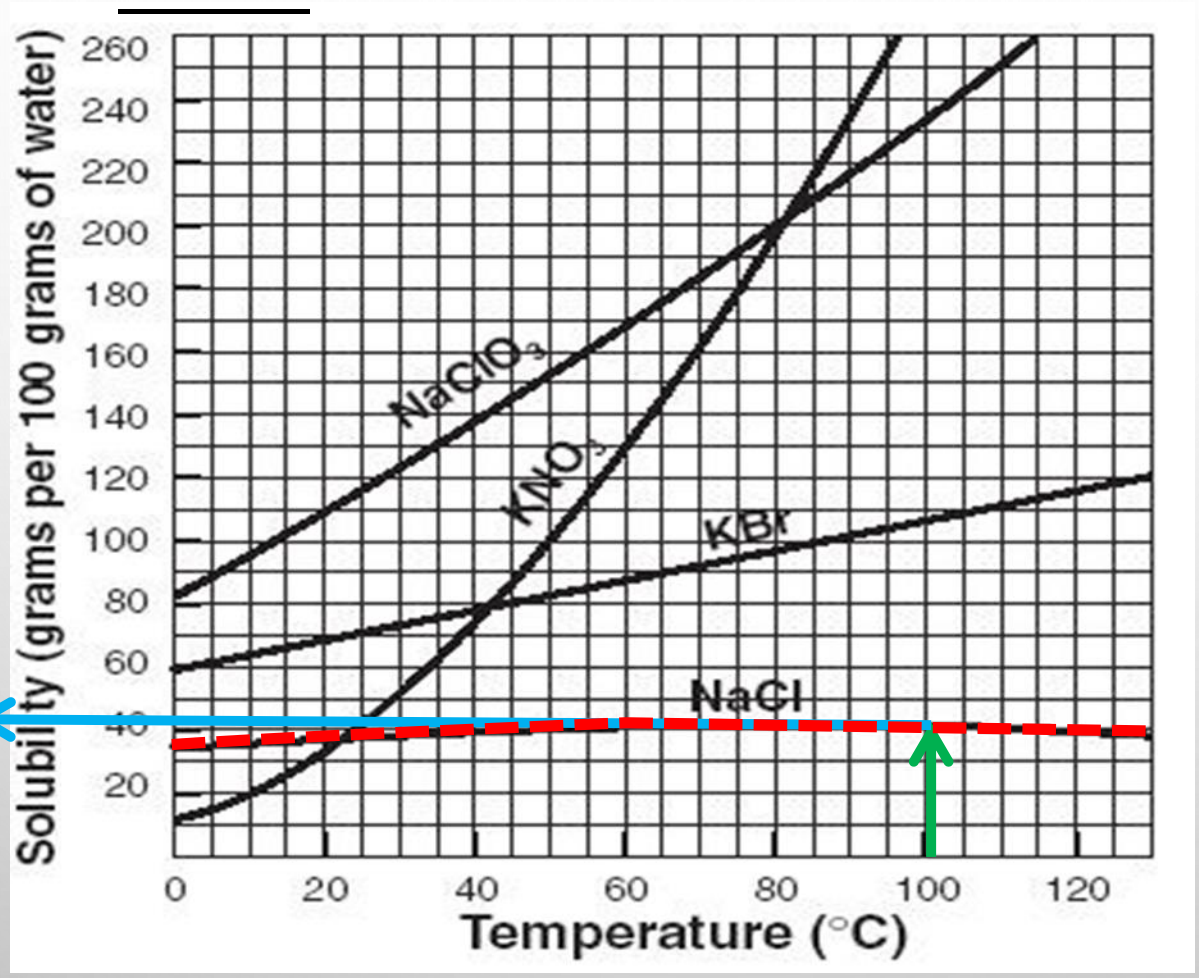


Practice #1: How many grams of potassium bromide (KBr) can dissolve in 100 g of water at 20°C?



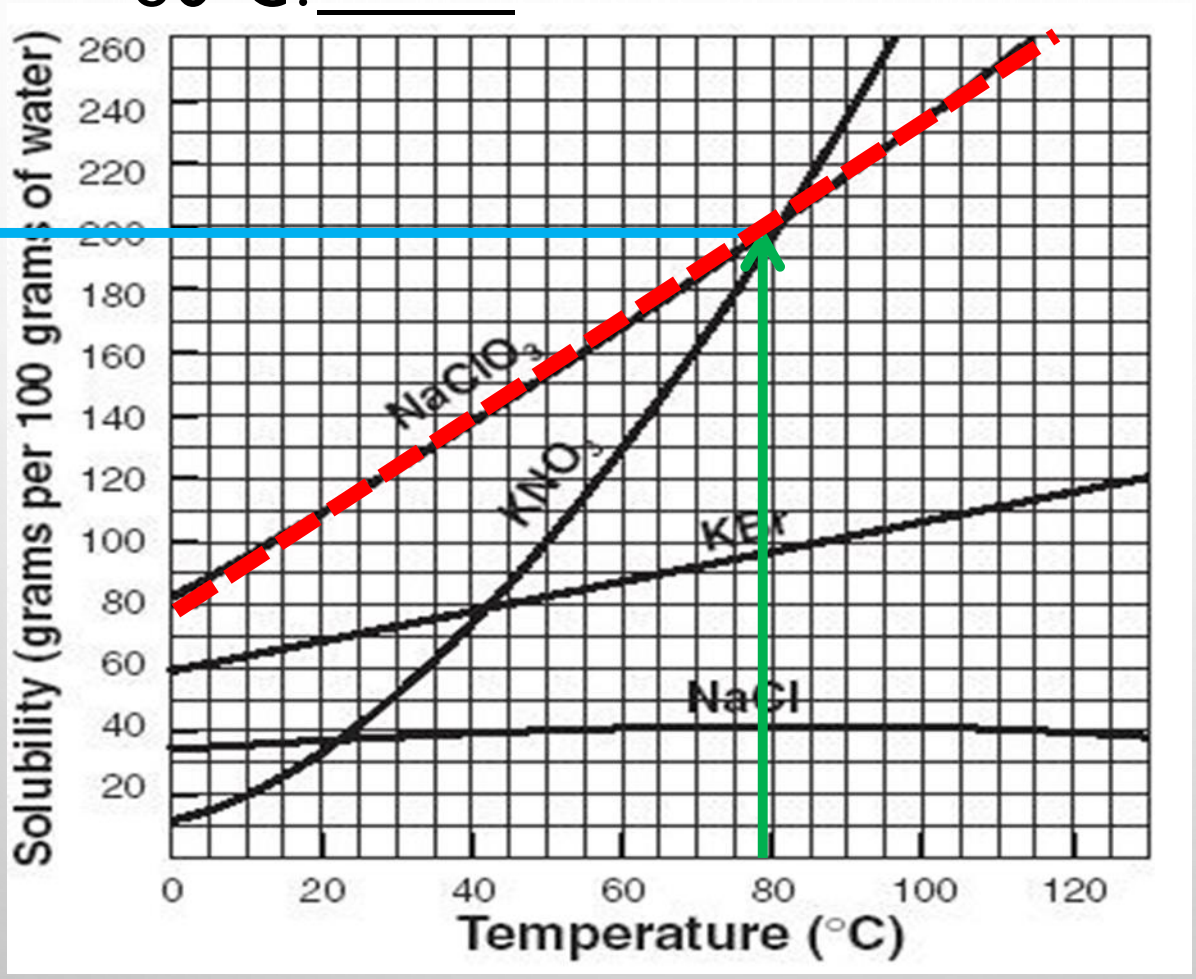
Answer: 70 grams of Potassium Bromide can be dissolved in 100 grams of water at 20° C.

Practice #2: How many grams of sodium chloride (NaCl) can dissolve in 100 g of water at 100°C?



Answer: 40 grams of Sodium chloride can be dissolved in 100 g of water at 100°C

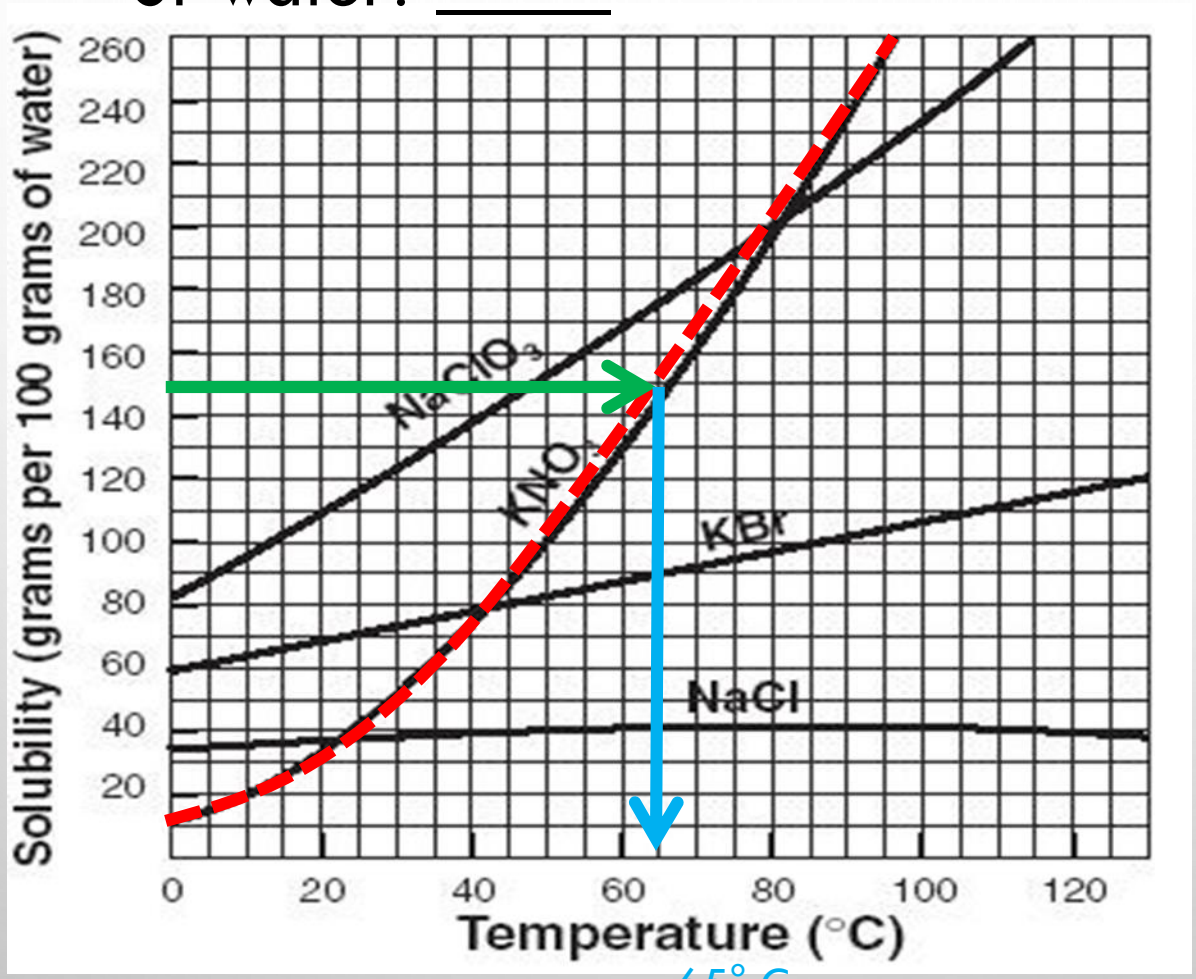
Practice #3: How many grams of sodium chlorate ($NaClO_3$) can dissolve in 200 g of water at 80°C?_____



200g per 100 g of water, so in 200 g of water we will have to double it:

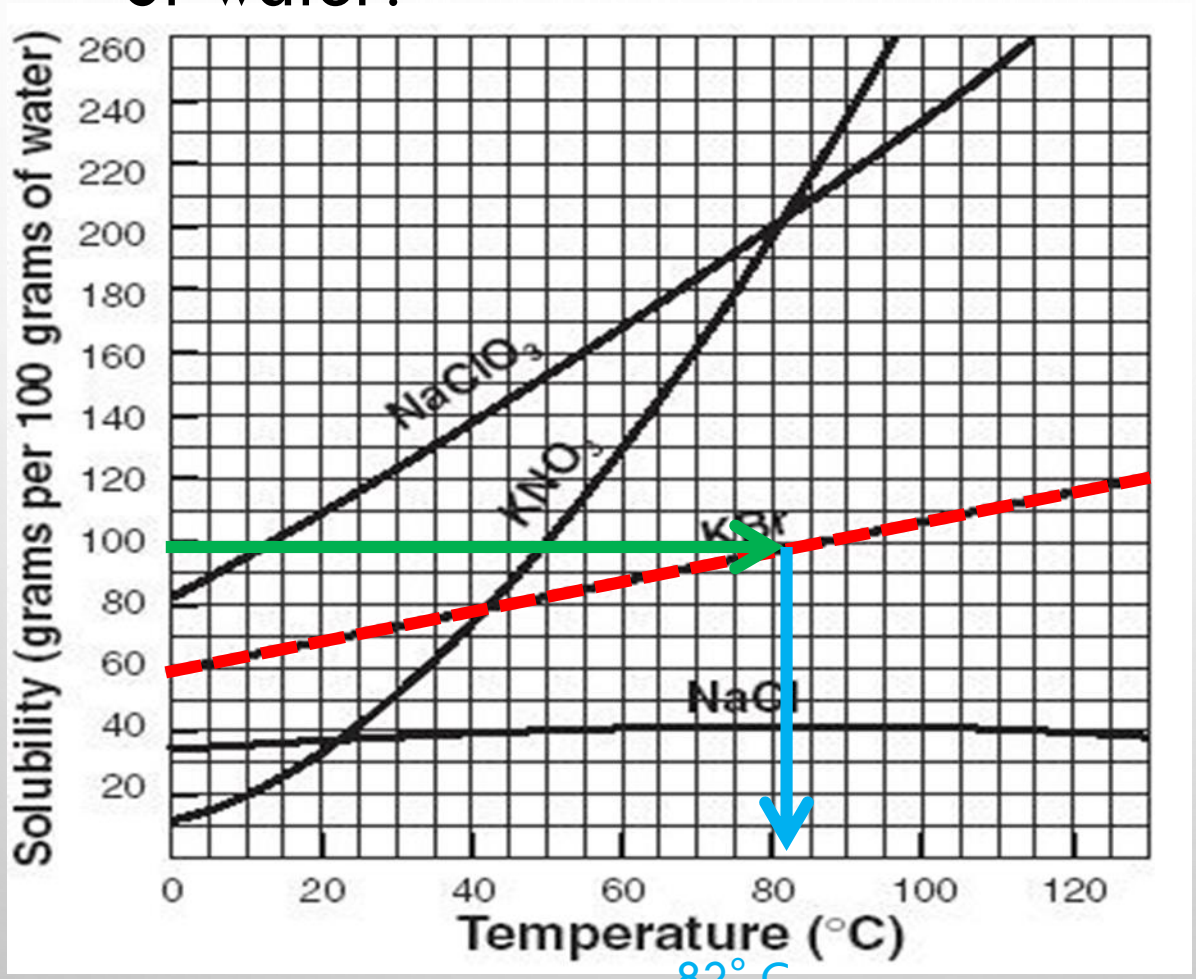
200x2=400 g $NaClO_3$ can be dissolved in 200 g of water at 80°C

Practice #4: At what temperature can 150 grams of potassium nitrate (KNO_3) dissolve in 100 g of water? _____



Answer: 150 grams of Potassium nitrate can be dissolved in 100 g of water at 65°C

Practice #5: At what temperature can 100 grams of potassium bromide (KBr) dissolve in 100 g of water?



Answer: 100 g of potassium bromide can dissolve in 100 g of water at 82°C