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Here is the solubility curve worksheet with answers:

1. Study the following solubility curve for potassium nitrate (KNO3) and answer the questions below:

Temperature (°C)	Solubility (g/100g water)
0	13.9
10	21.6
20	31.6
30	45.2
40	62.0
50	82.0
60	105.0
70	133.0
80	166.0
90	202.0
100	244.0

a) At what temperature does potassium nitrate have a solubility of 50g/100g water?

- The solubility of potassium nitrate is not exactly 50g/100g water in the given table. However, by looking at the table, we can estimate that it is between 40°C and 60°C. So, the approximate temperature would be 50°C.

b) How much potassium nitrate will dissolve in 100g of water at 25°C?

- At 25°C, the solubility of potassium nitrate is 31.6g/100g water. So, for 100g of water, the amount of potassium nitrate that will dissolve is 31.6g.

c) At 80°C, what is the solubility of potassium nitrate?

- At 80°C, the solubility of potassium nitrate is 166.0g/100g water.

d) Is potassium nitrate more soluble in water at 30°C or 70°C?

- Potassium nitrate is more soluble in water at 70°C because at 30°C, the solubility is 45.2g/100g water, while at 70°C, the solubility is 133.0g/100g water.

e) What is the general trend in solubility as temperature increases for potassium nitrate?

- The general trend in solubility as temperature increases for potassium nitrate is that solubility increases.

2. Study the solubility curve below for ammonium chloride (NH4Cl) and answer the questions:

Temperature (°C)	Solubility (g/100g water)
0	29.7
10	33.8
20	38.4
30	43.5
40	49.0
50	55.1
60	61.7
70	68.8
80	76.4
90	84.4
100	92.9

a) At what temperature does ammonium chloride have a solubility of 60g/100g water?

- The solubility of ammonium chloride is not exactly 60g/100g water in the given table. However, by looking at the table, we can estimate that it is between 50°C and 60°C. So, the approximate temperature would be 55°C.

b) How much ammonium chloride will dissolve in 200g of water at 40°C?

- At 40°C, the solubility of ammonium chloride is 49.0g/100g water. So, for 200g of water, the amount of ammonium chloride that will dissolve is 2 * 49.0g = 98.0g.

c) At 70°C, what is the solubility of ammonium chloride?

- At 70°C, the solubility of ammonium chloride is 68.8g/100g water.

d) Is ammonium chloride more soluble in water at 15°C or 50°C?

- Ammonium chloride is more soluble in water at 50°C because at 15°C, the solubility is 33.8g/100g water, while at 50°C, the solubility is 55.1g/100g water.

e) What is the general trend in solubility as temperature increases for ammonium chloride?

- The general trend in solubility as temperature increases for ammonium chloride is that solubility increases.