gridlocks – can you unlock the grid?

Tests for anions

Before you answer the puzzles below fill in the table of tests for anions:

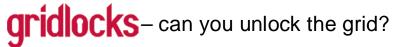| Anion	Formula	Test	Result
carbonate	CO_3^{2-}	add HCl(aq)	gas evolved (CO_2)
	Br^-	add $AgNO_3$(aq) to the solution	cream precipitate
nitrate		add Al powder and NaOH(aq) and warm gently. Test gas with damp red litmus	alkaline gas produced
sulfate	SO_4^{2-}	add $BaCl_2$(aq) to the solution	white precipitate
	Cl^-	add $AgNO_3$(aq) to the solution	white precipitate
iodide		add $AgNO_3$(aq) to the solution	pale yellow precipitate

Gridlock 1

Each row, column and 2 x 2 box contains information about the first four anions listed above. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

anion		test	
bromide			add HCl(aq)
	alkaline gas produced		sulfate
result		anion	

gridlocks – can you unlock the grid?

Gridlock 2

Each row, column and 2 x 2 box contains information about carbonate, iodide, chloride and sulfate anions.

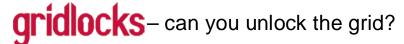| anion		test	
carbonate			add $BaCl_2$(aq) to the solution
	sulfate		
			CO_3^{2-}
		I^-	
result		formula	

Gridlock 3

Each row, column and 2 x 2 box contains information about carbonate, iodide, chloride and bromide anions.

anion		test	
bromide			
		add $AgNO_3$(aq) to the solution	
		CO_3^{2-}	
	pale yellow precipitate		Cl^-
result		formula	

gridlocks – can you unlock the grid?

Tests for anions – answers

Before you answer the puzzles below fill in the table of tests for anions:

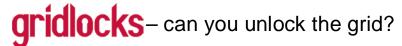| Anion	Formula	Test	Result
carbonate	CO_3^{2-}	add HCl(aq)	gas evolved (CO_2)
bromide	Br^-	add $AgNO_3$(aq) to the solution	cream precipitate
nitrate	NO_3^-	add Al powder and NaOH(aq) and warm gently. Test gas with damp red litmus	alkaline gas produced
sulfate	SO_4^{2-}	add $BaCl_2$(aq) to the solution	white precipitate
chloride	Cl^-	add $AgNO_3$(aq) to the solution	white precipitate
iodide	I^-	add $AgNO_3$(aq) to the solution	pale yellow precipitate

Gridlock 1 – answers

Each row, column and 2 x 2 box contains information about the first four anions listed above. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

anion		test	
bromide	sulfate	add Al powder and NaOH(aq) and warm gently. Test gas with damp red litmus	add HCl(aq)
nitrate	carbonate	add $BaCl_2$(aq) to the solution	add $AgNO_3$(aq) to the solution
gas evolved (CO_2)	alkaline gas produced	bromide	sulfate
white precipitate	cream precipitate	carbonate	nitrate
result		anion	

gridlocks – can you unlock the grid?

Gridlock 2 – answers

Each row, column and 2 x 2 box contains information about carbonate, iodide, chloride and sulfate anions.

anion		test	
carbonate	iodide	add AgNO$_3$(aq) to the solution	add BaCl$_2$(aq) to the solution
chloride	sulfate	add HCl(aq)	add AgNO$_3$(aq) to the solution
pale yellow precipitate	white precipitate	SO$_4{}^{2-}$	CO$_3{}^{2-}$
white precipitate	gas evolved (CO$_2$)	I$^-$	Cl$^-$
result		formula	

Gridlock 3 – answers

Each row, column and 2 x 2 box contains information about carbonate, iodide, chloride and bromide anions.

anion		test	
bromide	chloride	add AgNO$_3$(aq) to the solution	add HCl(aq)
iodide	carbonate	add AgNO$_3$(aq) to the solution	add AgNO$_3$(aq) to the solution
white precipitate	cream precipitate	CO$_3{}^{2-}$	I$^-$
gas evolved (CO$_2$)	pale yellow precipitate	Br$^-$	Cl$^-$
result		formula	