

Worksheet 9.2: Solutions

Galvanic cells

No.	Answer
1	a Y b From X to Y c X (site of oxidation) d From the Y half-cell to the X half-cell
2	a $X(s) \rightarrow X^{2+}(aq) + 2e^{-}$ b $Y^{+}(aq) + e^{-} \rightarrow Y(s)$
3	a $X(s) \rightarrow X^{2+}(aq) + 2e^{-}$ b $Z^{2+}(aq) + 2e^{-} \rightarrow Z(s)$
4	<p>In cell 1, the strongest reductant is X, since it is the metal oxidised; therefore $X > Y$</p> <p>In cell 2, the strongest reductant is X, since it is the metal oxidised; therefore $X > Z$</p> <p>The cell potential in cell 2 is less than that in cell 1, hence the difference in reductant strength between X and Z is less than that between X and Y; therefore reductant strength order is $X > Z > Y$.</p>
5	a From Z to Y b Z (site of oxidation) c $Y^{+}(aq) + e^{-} \rightarrow Y(s)$ d 0.46 V (X to Y = 1.05 V, X to Z = 0.59 V; therefore Y to Z = $1.05 - 0.59 = 0.46$ V)
6	Cell potentials would vary, as reduction potential varies with concentration.
7	It is highly soluble and does not react with any of the half-cell chemicals.
8	a Any metal above copper in the activity series. b Any metal below copper in the activity series.