

## Worksheet 12.2: Solutions

### Organic reaction pathways

No.	Answer
1	Compound A: ethene, $\text{CH}_2\text{CH}_2$ Compound B: ethanol, $\text{CH}_3\text{CH}_2\text{OH}$ Compound C: ethanoic acid, $\text{CH}_3\text{COOH}$ Compound D: propane, $\text{CH}_3\text{CH}_2\text{CH}_3$ Compound E: 1-chloropropane, $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$ Compound F: propan-1-ol, $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ Compound G: propyl ethanoate, $\text{CH}_3\text{COOCH}_2\text{CH}_2\text{CH}_3$
2	Test with bromine solution. Compound A (unsaturated) will decolourise bromine, while D (saturated) will not.
3	C is acidic and will produce a solution with pH less than 7. G is neither acidic nor basic; its solution will be neutral.
4	B and F belong to the primary alkanol homologous series. F is larger than B and so will have larger dispersion forces between molecules, leading to a higher boiling point.
5	Isomers
6	Compound L is an acid (i.e. contains an acidic functional group).
7	Compound H: but-1-ene, $\text{CH}_2\text{CHCH}_2\text{CH}_3$ Compound I: but-2-ene, $\text{CH}_3\text{CHCHCH}_3$ Compound J: 1-chlorobutane, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$ Compound K: 2-chlorobutane, $\text{CH}_3\text{CH}(\text{Cl})\text{CH}_2\text{CH}_3$ Compound L: butan-1-ol, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ Compound M: butanoic acid, $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ Compound N: polybut-2-ene, $\dots-\text{CHCH}_3\text{CHCH}_3\text{CHCH}_3\text{CHCH}_3-\dots$