

## Solutions

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Each answer shows the steps, then the **result**.

### 2.1

- starch — iodine (solution); turns blue-black. protein — biuret solution; turns purple/lilac

### 2.2

- standardise the test using solutions of **known concentration**; record the time to first colour change *or* the final colour for each; estimate the unknown by comparing its time/colour to these standards

### 3.1 B

- Biuret turns from blue to purple with protein; no heating is needed

### 3.2 B

- A non-reducing sugar (e.g. sucrose) is negative until acid hydrolysis breaks it into reducing sugars

### 3.3

(a)

- Benedict's solution + heat
- brick-red shows reducing sugar; iodine solution
- blue-black shows starch; biuret solution
- purple shows protein

(b)

- do a Benedict's test (stays blue); then boil a fresh sample with hydrochloric acid and neutralise; Benedict's now gives brick-red
- non-reducing sugar present

(c)

- e.g. volume of sample / volume of Benedict's / temperature / time of heating