

12. Experimental techniques and chemical analysis

Starter Quiz ·

IGCSE Chemistry

Name: _____ Score: _____

1. The independent variable is the one that you:
 - ☐ ignore
 - ☐ measure
 - ☐ deliberately change
 - ☐ keep the same
2. In a titration, the piece of apparatus that delivers an exact, measured volume is the:
 - ☐ beaker
 - ☐ test tube
 - ☐ thermometer
 - ☐ burette
3. Chromatography separates a mixture because its components:
 - ☐ react with the paper
 - ☐ travel at different speeds as the solvent moves
 - ☐ all move at the same speed
 - ☐ evaporate equally
4. Filtration is used to separate:
 - ☐ a dissolved solid
 - ☐ two gases
 - ☐ two liquids
 - ☐ an insoluble solid from a liquid
5. A sodium ion gives which flame colour?
 - ☐ yellow
 - ☐ lilac
 - ☐ blue-green
 - ☐ red
6. Repeating measurements and averaging removes all errors.
 - ☐ True ☐ False

7. How many moles are in 20 cm³ of acid of concentration 0.5 mol/dm³? (moles = conc × volume in dm³)

8. A spot moves 3 cm; the solvent moves 6 cm. What is the R_f value?

9. Fractional distillation separates an insoluble solid from a liquid.

☐ True ☐ False

10. A potassium ion gives a _____ flame colour.

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1. **deliberately change**

You change the independent variable.

2. **burette**

The burette delivers a precise, variable volume.

3. **travel at different speeds as the solvent moves**

Different speeds separate the substances.

4. **an insoluble solid from a liquid**

Filtration removes insoluble solids.

5. **yellow**

Sodium burns with a yellow flame.

6. **False**

False. Repeats reduce the effect of random error and improve reliability, but they cannot remove systematic errors, such as a badly calibrated balance.

7. **0.01**

$$0.5 \times (20 \div 1000) = 0.01 \text{ mol.}$$

8. **0.5**

$$R_f = 3 \div 6 = 0.5.$$

9. **False**

False. That is filtration. Fractional distillation separates liquids with different boiling points, such as crude oil fractions or ethanol and water.

10. **lilac**

Potassium burns lilac.