Lesson 13 - Review 2

Chemistry - Key Stage 3

Miss Charlton
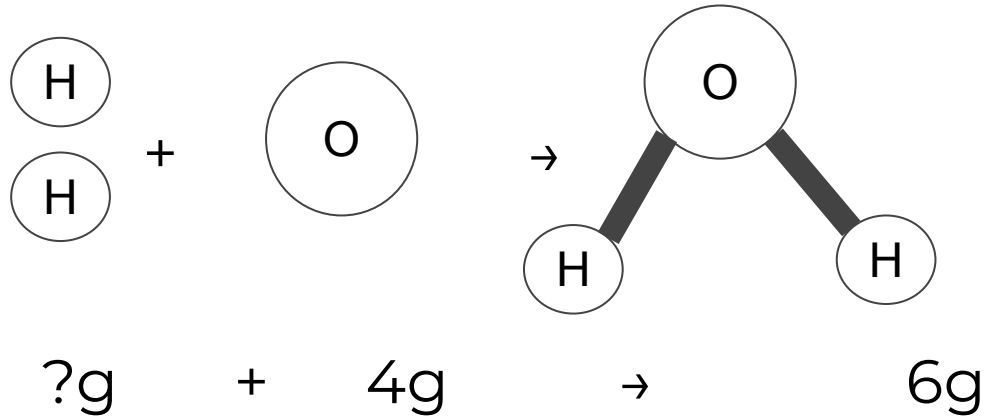
Complete the task

Balance these equations:
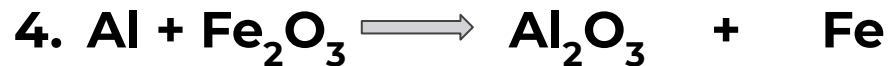
1. H_2 + Br_2 $\longrightarrow$ HBr

2. Ca + O_2 $\longrightarrow$ CaO

3. $MgCO_3$ + HCl $\longrightarrow$ $MgCl_2$ + H_2O + CO_2

4. Al + Fe_2O_3 $\longrightarrow$ Al_2O_3 + Fe

Conservation of mass

Mass is never created or destroyed
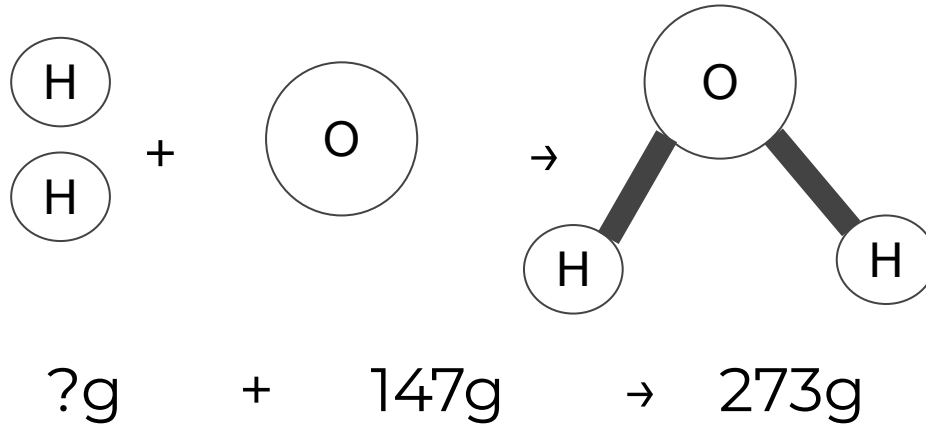
H
H
+
O
→
O
H
H

?g + 4g → 6g

Mass of reactants = mass of products

Conservation of mass

Mass is never created or destroyed

?g + 147g → 273g

Mass of reactants = mass of products

Conservation of mass

1. ? + 132g → 231g

2. 32g + 145g → ?

3. 0.88g + ? → 2.53g

4. 7.34g + 3.66g → ? + 1g

5. 49g + ? → 60g + 4g

Which graph has the fastest rate?

A

B
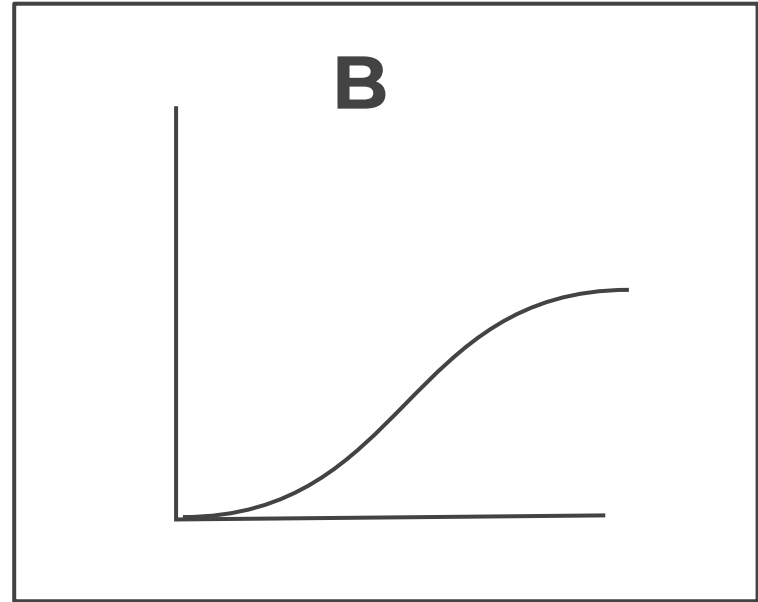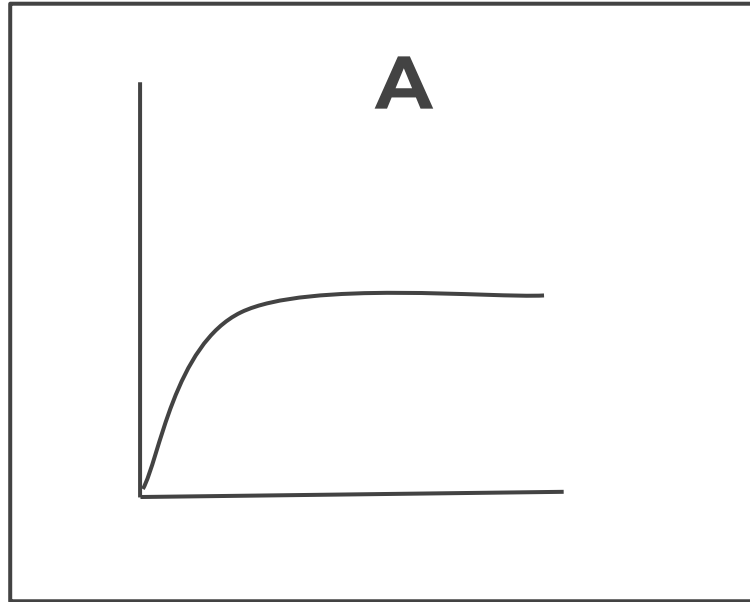
Which graph has the slowest rate?
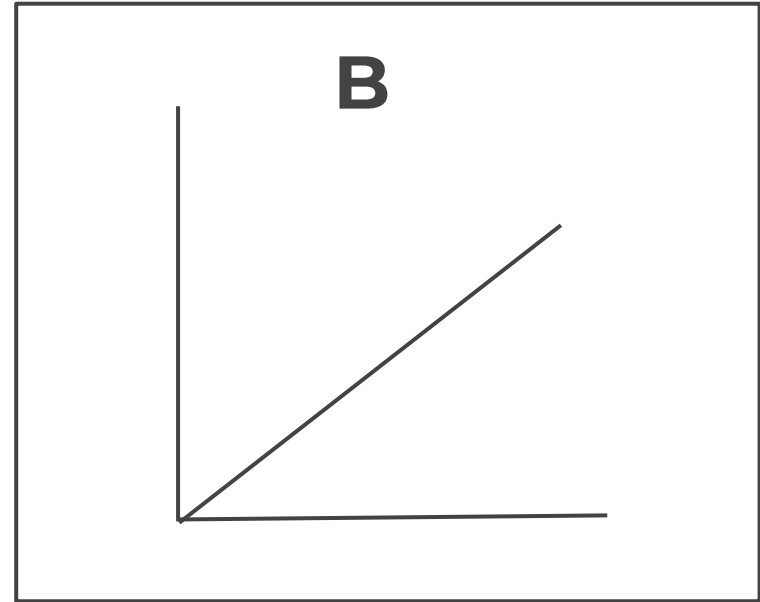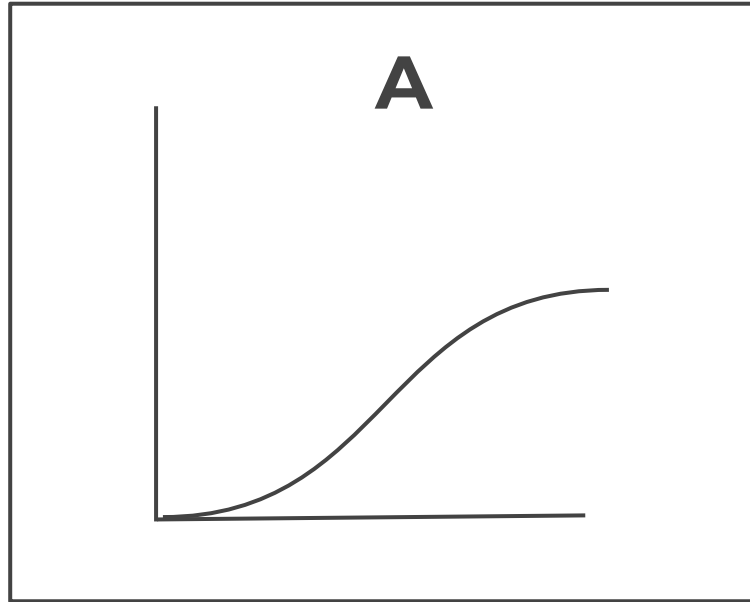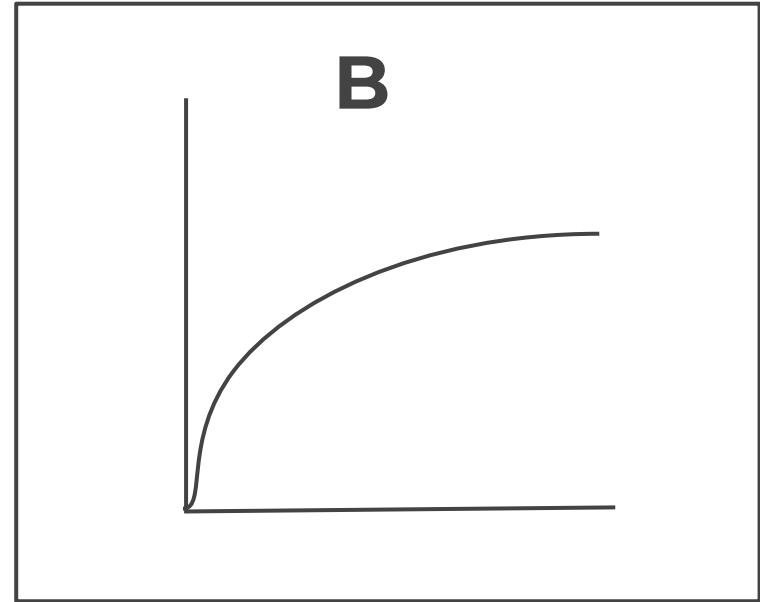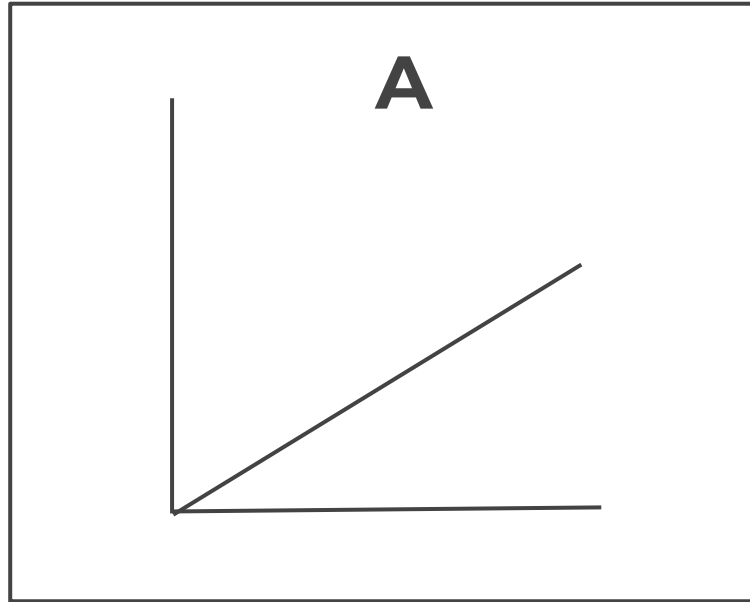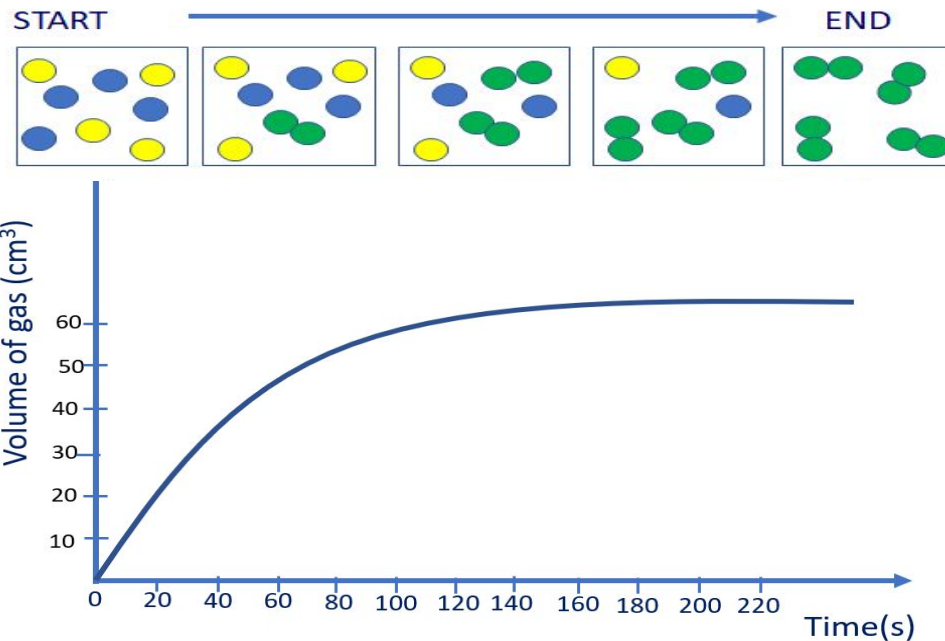
Which graph has the fastest rate?

Complete the task

Describe what happens to the rate of reaction by linking to a reaction rate graph to the particle diagrams.

Answers

Balancing Equations

1. H_2 + Br_2 ➡ **2** HBr
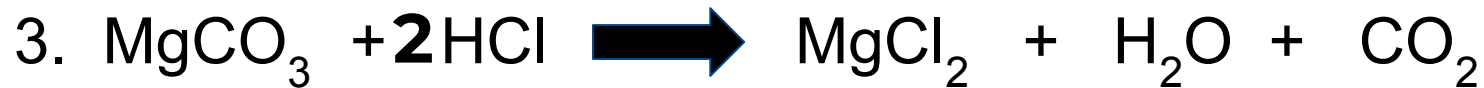
Element	Left	Right
H	2	~~1~~ 2
Br	2	~~1~~ 2

2. **2**Ca + O_2 ➡ **2** CaO

Element	Left	Right
Ca	~~1~~ 2	~~1~~ 2
O	2	~~1~~ 2

Balancing Equations

3. $MgCO_3$ + **2**HCl ➡️ $MgCl_2$ + H_2O + CO_2

Element	Left	Right
Mg	1	1
H	~~1~~ 2	2
C	1	1
Cl	~~1~~ 2	2
O	3	3

Balancing Equations

$$4.\textbf{2}\,Al \quad + \quad Fe_2O_3 \quad \longrightarrow \quad Al_2O_3 \; + \; \textbf{2}\,Fe$$

Element	Left	Right
Al	~~1~~ 2	2
Fe	2	~~1~~ 2
O	3	3

Conservation of mass

Mass is never created or destroyed

H
H
+
O
→
O
H
H

2g + 4g → 6g

Mass of reactants = mass of products

Conservation of mass

Mass is never created or destroyed

H
H
+
O
→
O
H
H

26g   +   147g   →   273g

Mass of reactants = mass of products

Conservation of mass

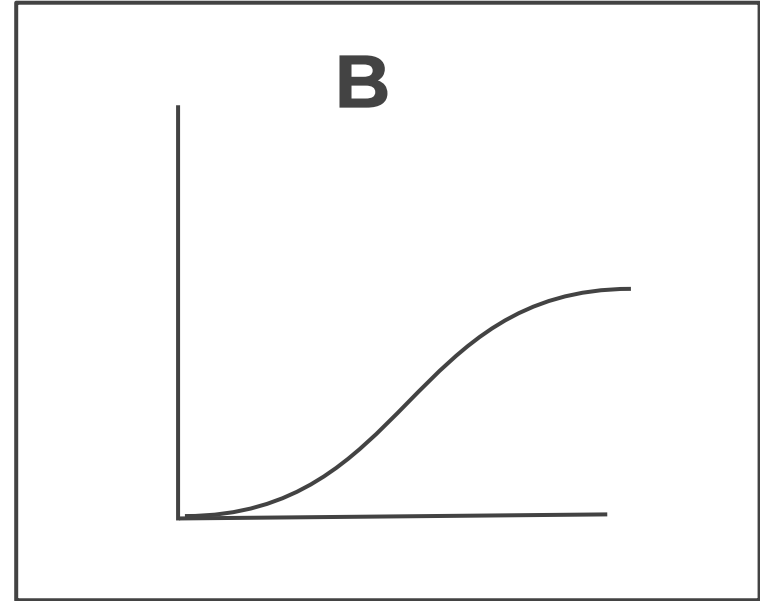1. **101g** + 132g → 233g
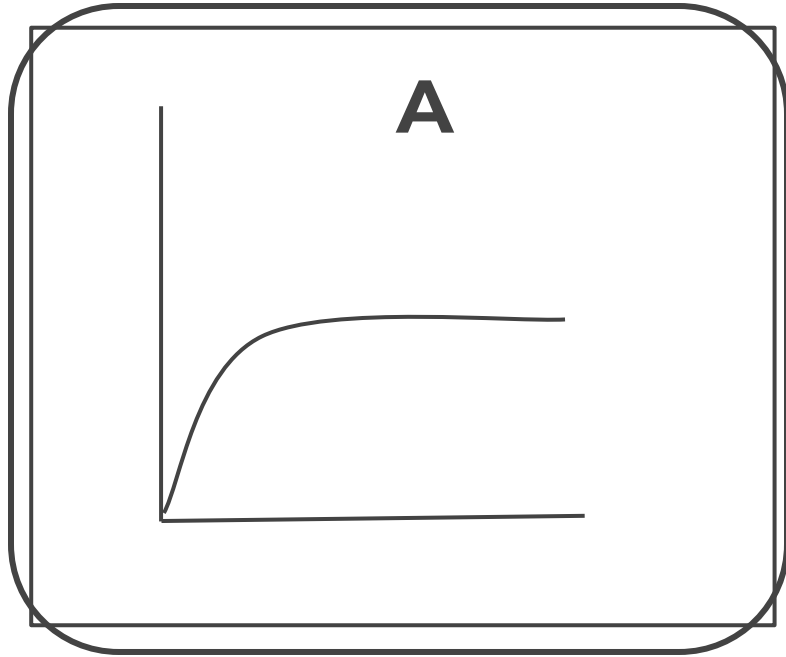
2. 32g + 145g → **177g**

3. 0.88g + **1.65g** → 2.53g
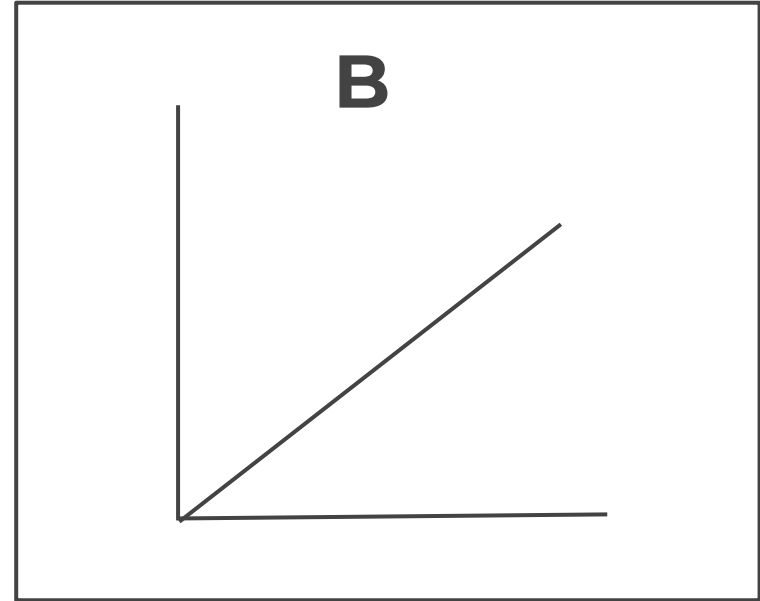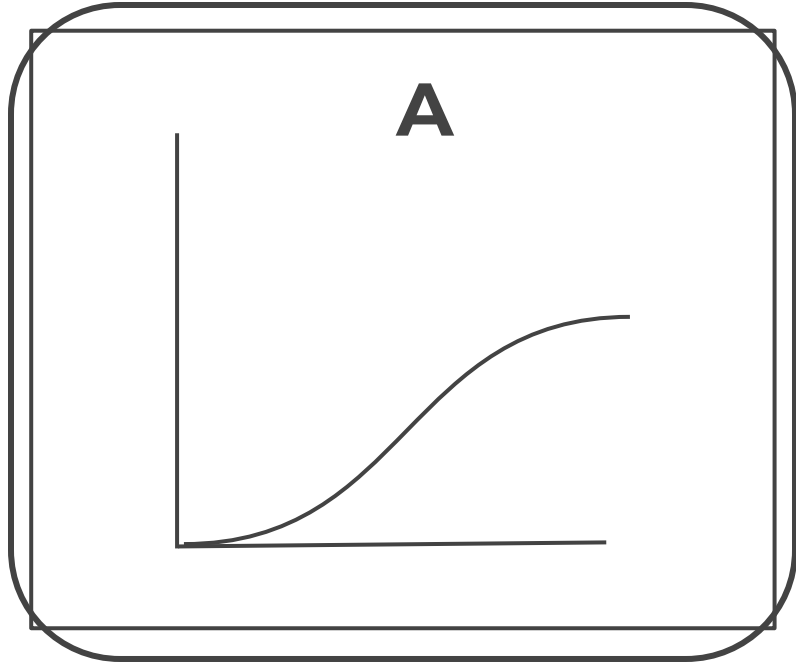
4. 7.34g + 3.66g → **10g** + 1g

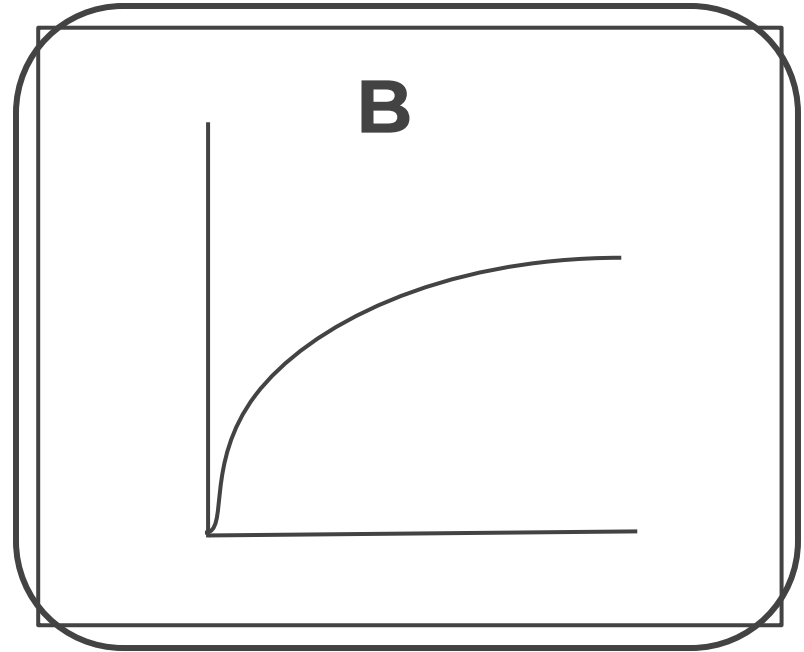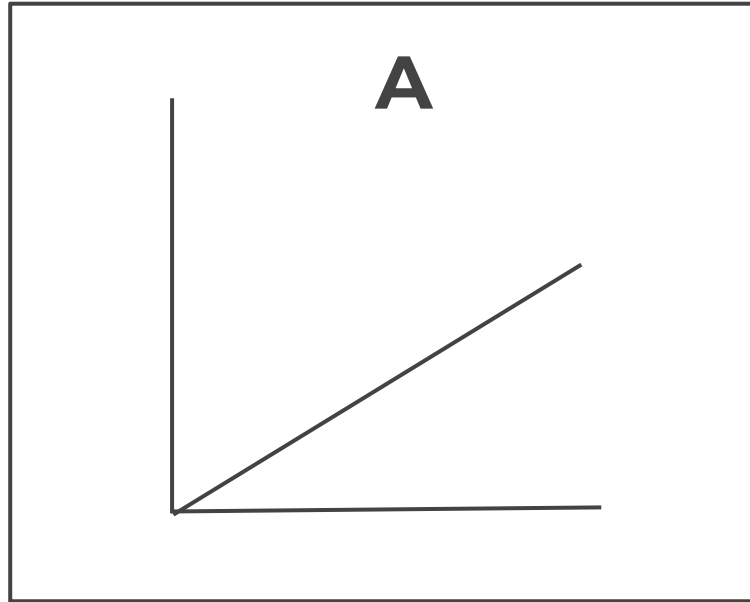5. 49g + **15g** → 60g + 4g

Which graph has the fastest rate?

A

B

Which graph has the slowest rate?

A

B

Which graph has the fastest rate?

A

B

Describe what happens to the rate of reaction by linking to a reaction rate graph to the number of particles

- At the beginning of the reaction we have the highest frequency of collisions which makes the rate quickest at the start, this is shown by the very steep curve.
- As the frequency of collisions begins to decrease the rate of reaction slows as there aren't as many successful collisions occurring, this is shown by the less steep part of the curve.
- Finally as the number of reacting particles reaches 0, the reaction stops as there are no more collisions between particles; the curve begins to flatline, meaning the rate doesn't increase or decrease. This shows us the reaction has finished as no more gas product is being made.