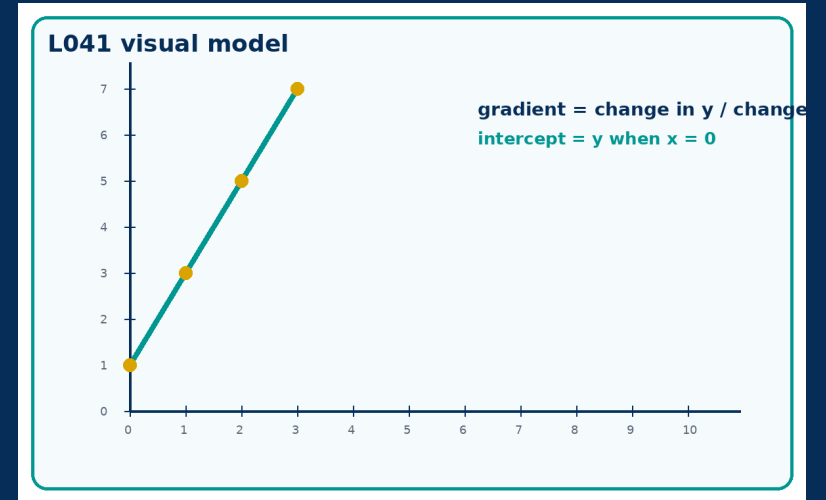


COORDINATES, GRADIENT AND INTERCEPT

GCSE Mathematics 1MA1 - L041 - 60 minutes

Week 14 - Reach for the Star Gold Standard



Objective and lesson route

Connect & Check

Plot coordinates and interpret gradient and vertical intercept from tables, graphs and equations.

Running order: Connect & Check -> Share -> Present -> Apply -> Recall & Review

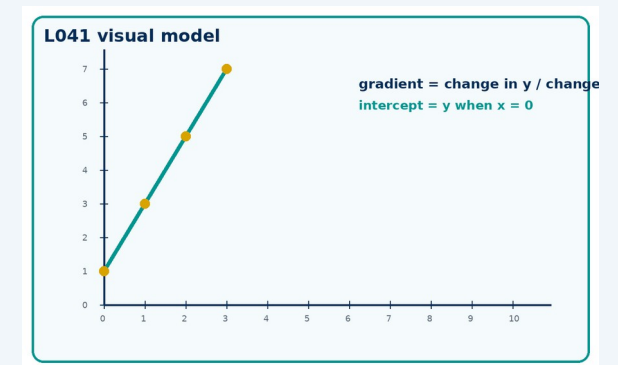
Non-calculator core. Calculator not required.

Baseline: what do you already know?

Connect & Check

Plot (0, 2), (1, 4), (2, 6) and describe the pattern.

Retrieve: what does one horizontal step do to the height?



Choose your route

Share

A - Visual: sketch, annotate or use the diagram.

B - Method: table, formula or calculation chain.

C - Explain: sentences showing why the method works.

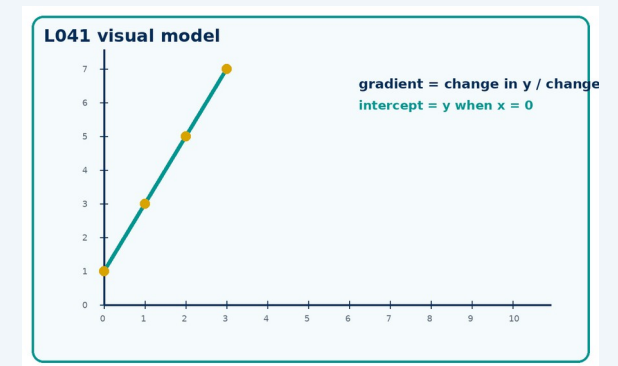
Same destination. Different journey.

Model the key method

Present

Gradient is change in y divided by change in x .

The vertical intercept is where the line crosses the y -axis, so $x = 0$.



Worked example

Present

A straight line passes through $(0, -2)$ and $(4, 10)$. Find the gradient and vertical intercept. Explain the meaning of each on the graph.

What is the first decision? What check proves it?

Misconception check

Present

Where might the first incorrect decision happen?

What would the learner do if they repeated the same method?

What fresh question proves the repair?

Supported practice

Apply

Plot $(0,1)$, $(1,3)$, $(2,5)$, $(3,7)$.

Find the gradient of the line through $(2,1)$ and $(6,9)$.

Use the scaffold first, then remove it.

Independent practice: scaffold removed

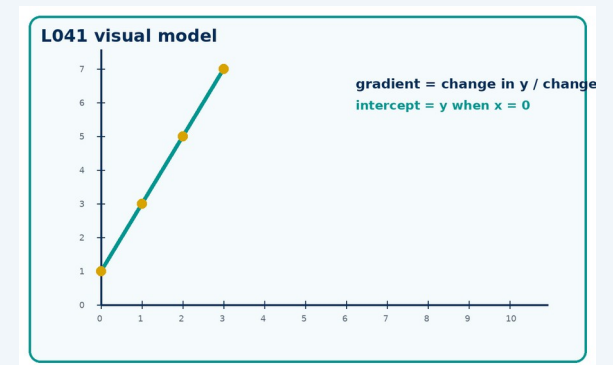
Apply

Plot (0,1), (1,3), (2,5), (3,7).

Find the gradient of the line through (2,1) and (6,9).

For $y = 3x - 4$, state the gradient and y-intercept.

Show working and a separate check.



Exam-style practice

Apply

A straight line passes through $(0, -2)$ and $(4, 10)$. Find the gradient and vertical intercept. Explain the meaning of each on the graph.

Mark the method, answer and check separately.

Stretch and deep challenge

Apply

Stretch: A line passes through $(-3, 4)$ and $(3, -2)$. Find gradient and y-intercept.

Deep challenge: Can two distinct parallel lines have different gradients? Explain using $y = mx + c$.

Self-mark and repair

Apply

Identify the first decision that went wrong.

Repair one answer, then solve a fresh matched question without prompts.

Independent exit evidence

Recall & Review

Given two fresh points, find the gradient and y-intercept without prompts.

Correct one plotting or scale error.

This is the evidence against the objective.

Distance travelled

Recall & Review

Compare your baseline with the exit evidence.

WWW: What is now more accurate, complete or clearly explained?

EBI: What one action will improve your next answer?

Core answers

Teacher check

A straight line with y increasing by 2 each step.

Gradient = 2.

Gradient 3; y -intercept -4.

Gradient = 3; intercept = -2.



L041 teacher notes

Check degree/calculator conditions where relevant.

Retain baseline, repair and exit evidence.

Next: L042 Straight line equations

L041 Recall & Review

Coordinates gradient and intercept



Fresh evidence: prove the objective

Solve a new question without prompts. Explain one check, then correct one error in your working.

Objective: Plot coordinates and interpret gradient and vertical intercept.

Write the next practice step before you leave. It must test the method again, not simply copy today's example.

Feedback language

Use the full phrases before the abbreviations.

What Went Well (WWW)

I read or constructed the graph accurately, used the scale and axes correctly and linked the relevant gradient, intercept, shape or trend to my conclusion.

Identify the mathematical method, representation, reasoning or check that improved.

Even Better If (EBI)

I will label units and scale clearly, show the calculation or graphical evidence I used and check that the interpretation fits the context.

Set one precise next-step action and test it on a fresh question.

Extension route

Choose this route only after the core evidence is secure.

Stretch

A line passes through $(-3, 4)$ and $(3, -2)$. Find gradient and y-intercept.

Deep challenge

Can two distinct parallel lines have different gradients? Explain using $y=mx+c$.

Explain your reasoning clearly enough that another learner could check it.