Coordinate transformations

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Describe translations, reflections and quarter-turn rotations using coordinates.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A translation adds the same displacement to every point. Reflection in the x-axis changes (x, y) to (x, -y); reflection in the y-axis changes it to (-x, y).

A 90° anticlockwise rotation about the origin maps (x, y) to (-y, x). A 180° turn maps it to (-x, -y). These transformations preserve lengths and angles.

Worked example

Translate A(-2,3) by 4 right and 5 down.

Add 4 to x and subtract 5 from y.

(-2+4,3-5)=(2, -2).

Answer: A′(2, -2)

Try it yourself

Name: _____ Date: _____

1. Reflect (3, -5) in the x-axis.

2. Reflect (-4,2) in the y-axis.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. (3,5)

Keep x and reverse y.

2. (4,2)

Reverse x and keep y.

Curriculum reference: VC2M7SP03

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