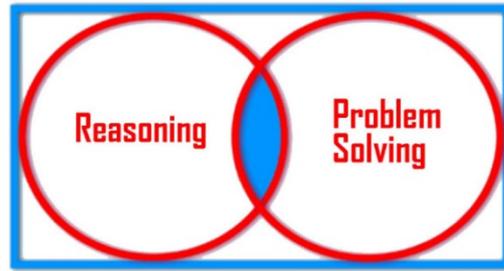


GCSE Foundation (5 – 1)

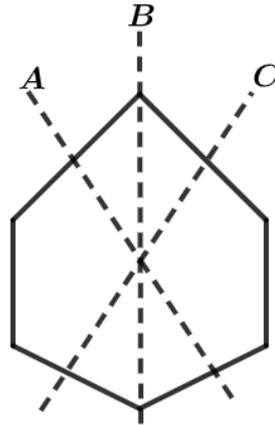


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Mathematical Reasoning Questions (The Four Transformations) – Set 1 Solutions

The questions are repeated here for your convenience

- 1** Tamara drew the three lines labelled A, B and C as line symmetries for the hexagon shown below



Which of her lines is not accurate? Choose all that apply

- a) B
- b) A
- c) C
- d) None of the above

Correct Answers: B and C

[1mark]

- 2** Ayesha translates the coordinate $(-5, -2)$ by moving it 2 units to the right and 3 units down. Which option below will be the new coordinate? Choose one answer

- a) $(-5, -2)$
- b) $(-7, -5)$
- c) $(-3, -5)$
- d) $(3, 5)$

Correct Answer: C

[1mark]

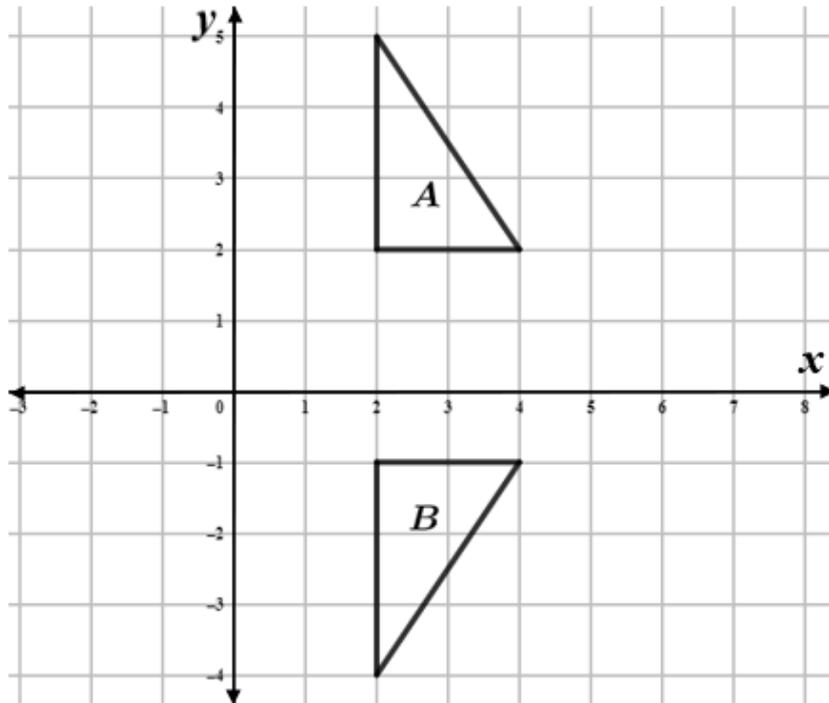
- 3** Which coordinate is the image of the coordinate $(0, -8)$ when it is reflected in the y -axis? Choose one answer:

- a) $(8, 0)$
- b) $(-8, 0)$
- c) $(0, -8)$
- d) None of the above

Correct Answer: C

[1mark]

- 4 What single transformation maps shape A to shape B on the grid below?



Choose one answer

- a) Reflection in the line $y = 0$
- b) Reflection in the x – axis
- c) Reflection in the line $y = 0.5$
- d) Reflection in the y – axis

Correct Answer: C [1mark]

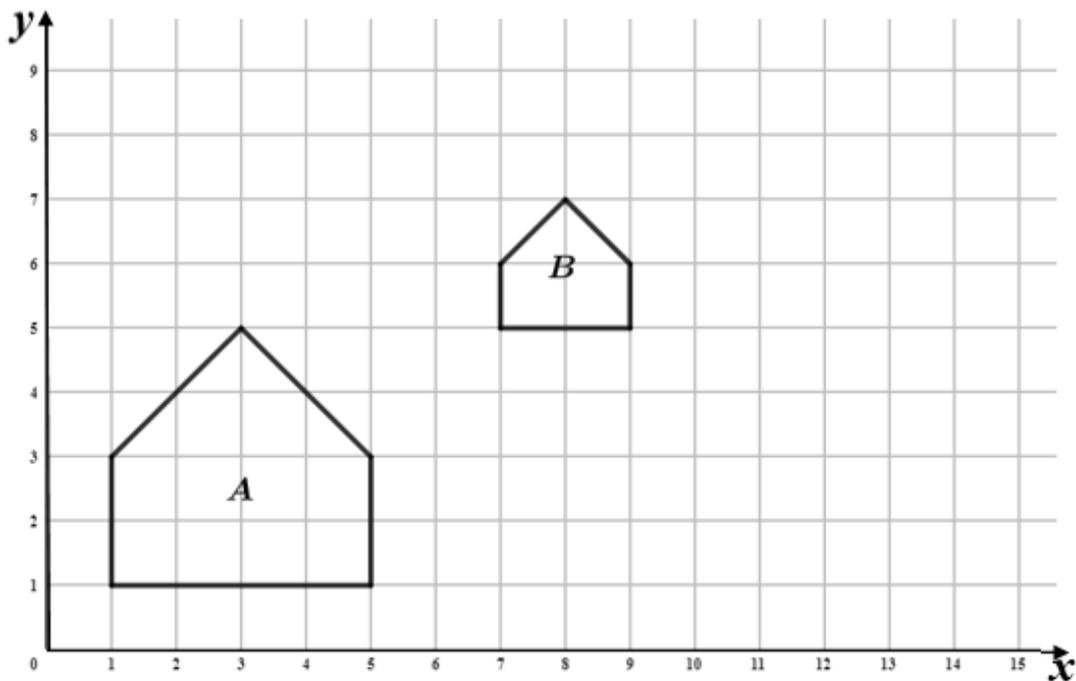
- 5 What transformation will map the coordinate $(2, -1)$ to the coordinate $(-2, -1)$? Choose all the correct answers

- a) Reflection in the x – axis
- b) Reflection in the y – axis
- c) Rotation about the origin in the clockwise direction
- d) Translation by the vector $\begin{pmatrix} -4 \\ 0 \end{pmatrix}$

Correct Answers: B and D

[2marks]

6 What single transformation maps shape A to shape B?



- a) Reduction by a scale factor of $\frac{1}{2}$ from the point (13, 9)
- b) Enlargement by a scale factor of $\frac{1}{2}$ from the point (13, 9)
- c) Enlargement by a scale factor of 2 from the point (0,0)
- d) Reduction by a scale factor of 2 from the point (0,0)

Correct Answer: B [1mark]

7 Answer **True** or **False** to the following statements

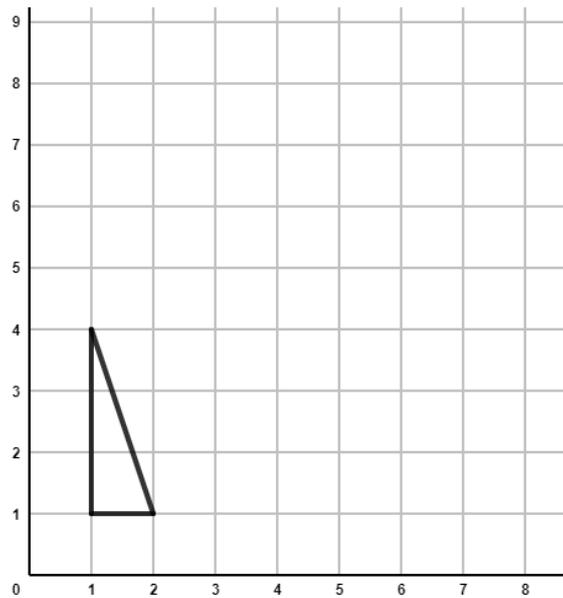
- a) An enlargement by a scale factor of 1 will cause an object to increase by 100%
- b) Translation by the vector $\begin{pmatrix} 1 \\ 1 \end{pmatrix}$ is the same as rotation through 90° clockwise about the origin
- c) Reflection in the x – axis is the same as Reflection in the line $y = 0$

Solution

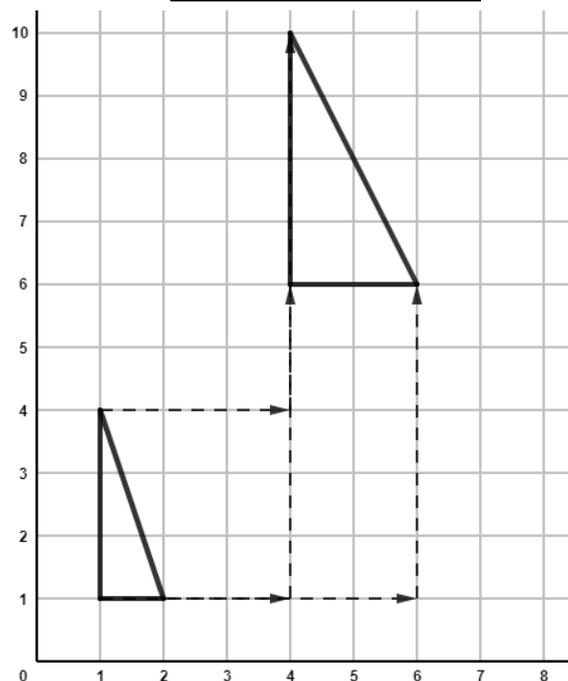
- a) **False**
- b) **False**
- c) **True**

[3marks]

8 Enlarge the triangle below by a scale factor of 2



Leah's Answer



Identify the mistake Leah made

Solution

Leah's shape should be 6 units tall, but it only covers 4 units. This happened because she did not extend the vertical line for the height of the triangle long enough to ensure the height of the image was twice as tall as the original. **[1mark]**

<p>9</p>	<p>What is the image of the coordinate $(4, -1)$ if it is rotated about the origin through 180°? Choose one answer</p> <p>a) $(-4, -1)$ b) $(4, 1)$ c) $(-4, 1)$ d) None of the above</p> <p>Correct answer: C [1mark]</p>
<p>10</p>	<p>The coordinate $A = (5, 3)$ is rotated 90° anticlockwise about the origin to form the coordinate B</p> <p>The coordinate B is translated by the vector $\begin{pmatrix} 0 \\ -6 \end{pmatrix}$ to form the coordinate C</p> <p>What single transformation maps A to C?</p> <p>Choose all the correct answers</p> <p>a) Reflection in the line $y = x$ b) Reflection in the line $y = -x$ c) Rotation through 270° anticlockwise about the origin d) Rotation through 90° clockwise about the origin</p> <p>Correct Answers: B and C [2marks]</p>