8.9 Geometry: Coordinates and Transformations: Test Pack

Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Point A is at (3, -2). Write down the coordinates of point A.

(1)

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2 Point B is at (-5, 3). It is reflected in the y-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

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3 Point A is at (-3, 2). It is translated by the vector (-3, -2), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

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4 Point A is at (5, -1). It is translated by the vector (-3, 4), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

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5 A line joins (-2, 5) and (6, 5).

What are the coordinates of the midpoint of the line?

Answer: (___, ___)

(1)

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6 Three corners of a rectangle are (-2, -5), (1, -5) and (1, 1). The sides are parallel to the axes.

What are the coordinates of the fourth corner?

Answer: (___, ___)

(2)

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7 Find the vector that maps P(-3, 2) to Q(4, -1).

(2)

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8 A rectangle R has vertices at (-2, 0), (2, 0), (2, 3) and (-2, 3). First translate R by (1, -2). Then translate the result by (-3, 4). Give the coordinates of the final rectangle.

(2)

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9 Challenge: A triangle has vertices at A(0, 0), B(3, 0) and C(1, 2). It is translated by the vector (2, 1) then reflected in the x-axis. Give the coordinates of the final image and explain each step briefly.

(3)

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10 A point B is at (-4, 5). What is the x-coordinate of B?

(1)

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11 Point B is at (6, -2). It is reflected in the y-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(1)

---

12 Point B is at (5, 0). It is reflected in the y-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(1)

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13 Point A is at (3, 5). It is translated by the vector (3, 1), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

---

14 Point B is at (0, 6). It is reflected in the mirror line x = 2.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

---

15 Point B is at (-4, 6). It is reflected in the x-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

---

16 Point B is at (0, 1). It is reflected in the x-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

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17 Reflect point F at (6, 2) in the x-axis. What are the coordinates of the reflected point F'?

(1)

---

18 Point B is at (3, -5). It is reflected in the y-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(1)

---

19 A shape has vertices A(2, 0), B(5, 2), C(5, 0), D(6, 6). It is translated 3 units right.

Write the coordinates of the translated vertices in the same order.

Answer: ___

(2)

---

20 Two angles in a triangle are 54 degrees and 85 degrees.

What is the third angle?

Answer: ___ degrees

(2)

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21 Point A is at (3, 0). It is translated by the vector (-5, 5), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

---

22 A pentagon P has vertices at (2, 1), (4, 1), (5, 3), (3, 5) and (1, 3). First translate the pentagon by (-3, 2). Then reflect the translated pentagon in the y-axis. Give the coordinates of the final image.

(3)

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23 Point B is at (4, 4). It is reflected in the x-axis.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

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24 Point A is at (3, 6). It is translated by the vector (-1, -4), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

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25 Point A is at (7, 4). It is translated by the vector (-2, 1), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

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Mark scheme · 8.9 Geometry: Coordinates and Transformations: Test Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

(3, -2) cao — **B1**

Answer: **(3, -2)**

Question 2

one coordinate correct — **M1**

(5, 3) cao — **A1**

Answer: **(5, 3)**

Question 3

adds the vector — **M1**

(-6, 0) cao — **A1**

Answer: **(-6, 0)**

Question 4

adds the vector — **M1**

(2, 3) cao — **A1**

Answer: **(2, 3)**

Question 5

(2, 5) cao — **B1**

Answer: **(2, 5)**

Question 6

one coordinate correct — **M1**

(-2, 1) cao — **A1**

Answer: **(-2, 1)**

Question 7

Compute change in x: 4 - (-3) = 7 and change in y: -1 - 2 = -3 — **M1**

Vector (7, -3) cao — **B1**

Answer: **(7, -3)**

Question 8

Combine vectors: (1, -2) + (-3, 4) = (-2, 2) or apply translations sequentially — **M1**

Final vertices (-4, 2), (-0, 2), (0, 5), (-4, 5) cao — **B1**

Answer: **(-4, 2), (0, 2), (0, 5), (-4, 5)**

Question 9

Correct translation by (2,1) to give A(2,1), B(5,1), C(3,3) — **M1**

Correct reflection in x-axis: change sign of y to give A(2,-1), B(5,-1), C(3,-3) — **M1**

Final coordinates A'(2, -1), B'(5, -1), C'(3, -3) cao — **B1**

Answer: **A'(2, -1), B'(5, -1), C'(3, -3)**

Question 10

-4 cao — **B1**

Answer: **-4**

Question 11

(-6, -2) cao — **B1**

Answer: **(-6, -2)**

Question 12

(-5, 0) cao — **B1**

Answer: **(-5, 0)**

Question 13

adds the vector — **M1**

(6, 6) cao — **A1**

Answer: **(6, 6)**

Question 14

same distance from the mirror line — **M1**

(4, 6) cao — **A1**

Answer: **(4, 6)**

Question 15

one coordinate correct — **M1**

(-4, -6) cao — **A1**

Answer: **(-4, -6)**

Question 16

one coordinate correct — **M1**

(0, -1) cao — **A1**

Answer: **(0, -1)**

Question 17

(6, -2) cao — **B1**

Answer: **(6, -2)**

Question 18

(-3, -5) cao — **B1**

Answer: **(-3, -5)**

Question 19

two vertices correct — **M1**

(5, 0), (8, 2), (8, 0), (9, 6) cao — **A1**

Answer: **(5, 0), (8, 2), (8, 0), (9, 6)**

Question 20

139 seen — **M1**

41 degrees cao — **A1**

Answer: **41 degrees**

Question 21

adds the vector — **M1**

(-2, 5) cao — **A1**

Answer: **(-2, 5)**

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Question 22

Perform translation (-3, 2) correctly on at least one vertex	**M1**
Reflect translated coordinates in y-axis correctly (sign change of x) for at least one vertex	**M1**
Final vertices correctly given as (1, 3) -> after translation (-1, 3) reflect (1, 3); (4,1)->(1,3)->(-1,3) etc or full correct set cao	**B1**

Answer: **(1, 3), (-1, 3), (-2, 5), (0, 7), (2, 5)**

Question 23

one coordinate correct	**M1**
(4, -4) cao	**A1**

Answer: **(4, -4)**

Question 24

adds the vector	**M1**
(2, 2) cao	**A1**

Answer: **(2, 2)**

Question 25

adds the vector	**M1**
(5, 5) cao	**A1**

Answer: **(5, 5)**

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