COORDINATES: MIDPOINT OF A LINE SEGMENT

Best Guess Mastery Worksheet (Target Grade 4/5)

I Do

Point A has coordinates (3, 8).

Point B has coordinates (7, −2).

Work out the coordinates of the midpoint of AB.

We Do

Point C has coordinates (−4, 5).

Point D has coordinates (2, 1).

Work out the coordinates of the midpoint of CD.

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You Do 1

Point E has coordinates $(-1, -6)$.

Point F has coordinates $(9, 4)$.

Work out the coordinates of the midpoint of EF.

You Do 2

Point P has coordinates $(0, 7)$.

Point Q has coordinates $(-8, -4)$.

Work out the coordinates of the midpoint of PQ.

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Challenge 1

M is the midpoint of the line segment *GH*.
M has coordinates (4, 1).
Point *G* has coordinates (1, 6).
Work out the coordinates of point *H*.

Challenge 2

The points *J* (2, −3) and *K* (8, 5) are opposite ends of the diameter of a circle.
Work out the coordinates of the centre of the circle.

Answers & Worked Solutions

I Do:

x-coordinate = (3 + 7) ÷ 2 = 10 ÷ 2 = 5
y-coordinate = (8 + −2) ÷ 2 = 6 ÷ 2 = 3
Midpoint = **(5, 3)**

We Do:

x-coordinate = (−4 + 2) ÷ 2 = −2 ÷ 2 = −1
y-coordinate = (5 + 1) ÷ 2 = 6 ÷ 2 = 3
Midpoint = **(−1, 3)**

You Do 1:

x-coordinate = (−1 + 9) ÷ 2 = 8 ÷ 2 = 4
y-coordinate = (−6 + 4) ÷ 2 = −2 ÷ 2 = −1
Midpoint = **(4, −1)**

You Do 2:

x-coordinate = (0 + −8) ÷ 2 = −8 ÷ 2 = −4
y-coordinate = (7 + −4) ÷ 2 = 3 ÷ 2 = 1.5
Midpoint = **(−4, 1.5)**

Challenge 1:

Let H be (x, y).
$(1 + x) \div 2 = 4 \rightarrow 1 + x = 8 \rightarrow x = 7$
$(6 + y) \div 2 = 1 \rightarrow 6 + y = 2 \rightarrow y = -4$
Coordinates of H = **(7, −4)**

Challenge 2:

The centre of the circle is the midpoint of the diameter JK.
x-coordinate = (2 + 8) ÷ 2 = 10 ÷ 2 = 5
y-coordinate = (−3 + 5) ÷ 2 = 2 ÷ 2 = 1
Centre of the circle = **(5, 1)**