

Solutions

Marking: **M1** a correct method, **A1** the correct answer.

Each answer shows the steps, then the **result**.

2.1

- differences are 6 across and 8 up, so $AB = \sqrt{6^2 + 8^2} = \sqrt{36 + 64}$
 $= \sqrt{100} = \mathbf{10}$

2.2

- average each coordinate: $\left(\frac{1+7}{2}, \frac{2+10}{2}\right)$
 $= (\mathbf{4}, \mathbf{6})$

2.3

- differences are 5 and -12 , so $PQ = \sqrt{5^2 + (-12)^2} = \sqrt{25 + 144}$
 $= \sqrt{169} = \mathbf{13}$

3.1

(a)

- $\left(\frac{-2+4}{2}, \frac{1+6}{2}\right)$
 $= (\mathbf{1}, \mathbf{3.5})$

(b)

- differences are 6 and 5
- $AB = \sqrt{36 + 25}$
 $= \sqrt{\mathbf{61}}$
- 61 has no square factor, so $\sqrt{61}$ is already the exact form; a decimal would lose the mark

3.2

- the midpoint is the average, so $\frac{-1+x_Q}{2} = 3$ and $\frac{4+y_Q}{2} = -1$
- $x_Q = 6 - (-1) = 7$ and $y_Q = -2 - 4 = -6$

$$Q = (\mathbf{7}, \mathbf{-6})$$