

1. Find the x-component of $(4,1)+(1,3)$.

2. For $C=(1,1), P=(3,2), k=2$, find the image x-coordinate.

3. Find the magnitude of $(4,3)$.

4. For that enlargement, find the image y-coordinate.

5. Find the y-component of $(4,1)+(1,3)$.

6. Every enlargement is centred at the origin unless its scale factor is negative.
☐ True ☐ False
7. AB and BA always have the same components.
☐ True ☐ False
8. For an enlargement with centre $C=(1,1)$ and factor 2, why is the image of $P=(3,2)$ found from $P-C$ first?
☐ Every enlargement is centred at the origin
☐ The centre never affects the image
☐ The displacement FROM THE CENTRE is what the scale factor multiplies: $C+2(P-C)=(5,3)$
9. What is the displacement vector from $A=(1,2)$ to $B=(5,5)$?
☐ $(4,3)$: subtract the start position from the end position
☐ $(6,7)$: add the two positions
☐ $(3,4)$: swap the components
10. Reflect $(3,2)$ in the y-axis. Find the new x-coordinate.

 AQA · A-Level · Mathematics
1. **5.0**

Add the x-components: $4+1=5$.

2. **5.0**

Image= $C+2(P-C)$. Its x-coordinate is $1+2(3-1)=5$.

3. **5.0**

Magnitude= $\sqrt{4^2+3^2}=5$.

4. **3.0**

Its y-coordinate is $1+2(2-1)=3$.

5. **4.0**

Add the y-components: $1+3=4$.

6. **False**

A rotation needs its centre and direction, not just an angle. A negative enlargement factor places the image on the opposite side of the centre. A translation does not change orientation or size.

7. **False**

The order of subtraction matters: $BA=-AB$. Proving parallelism needs a scalar-multiple relation; a sketch alone is insufficient. Negative enlargement reverses position about its centre.

8. **The displacement FROM THE CENTRE is what the scale factor multiplies: $C+2(P-C)=(5,3)$**

Enlargement scales the vector from the centre to each point. $P-C=(2,1)$ doubles to $(4,2)$, and adding back the centre gives $(5,3)$. Scaling P directly would wrongly assume the origin as centre.

9. **(4,3): subtract the start position from the end position**

$AB = OB - OA = (5,5)-(1,2) = (4,3)$. The order matters: BA would be $(-4,-3)$, the opposite direction.

10. **-3.0**

Reflection in the vertical axis negates x: 3 becomes -3.