

Compass constructions — Copy a segment

Name: _____

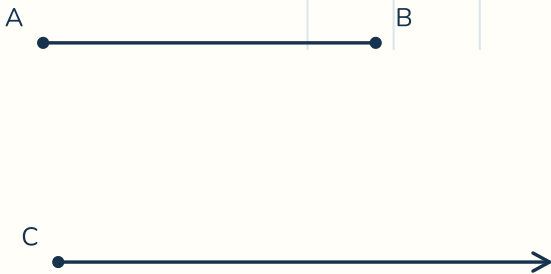
Date: _____

Copy each segment onto the ray beside it. Leave your arcs showing.

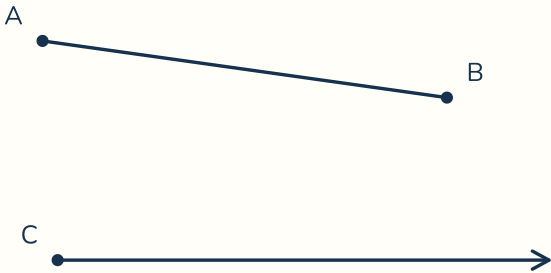
1 Copy AB onto the ray from C.



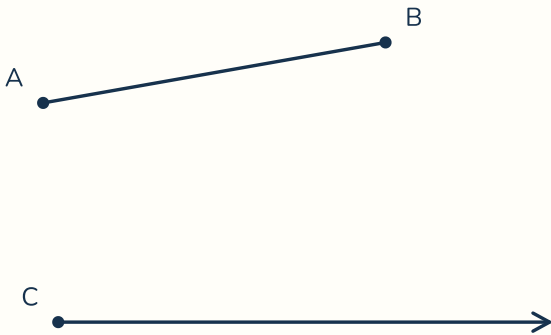
2 Copy AB onto the ray from C.



3 Copy AB onto the ray from C.



4 Copy AB onto the ray from C.



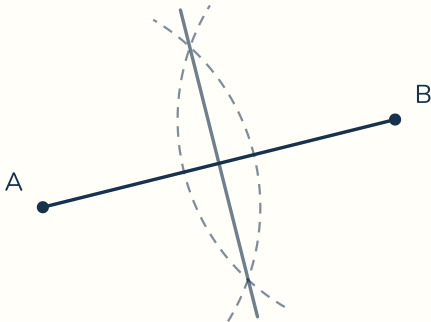
Compass constructions — Bisect a segment

Name: _____

Date: _____

Construct each perpendicular bisector. Leave your arcs showing.

1 Construct the bisector of AB.



2 Construct the bisector of AB.



3 Construct the bisector of AB.



4 Construct the bisector of AB.



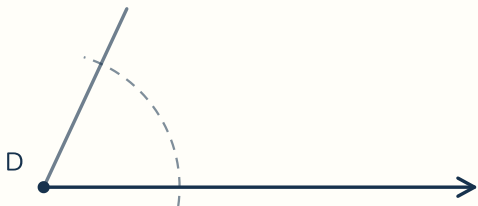
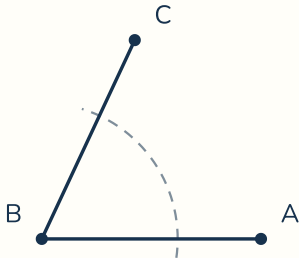
Compass constructions — Copy an angle

Name: _____

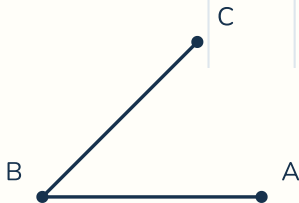
Date: _____

Copy each angle onto the ray beside it. Leave your arcs showing.

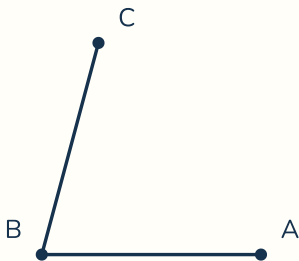
1 Copy angle ABC onto the ray from D.



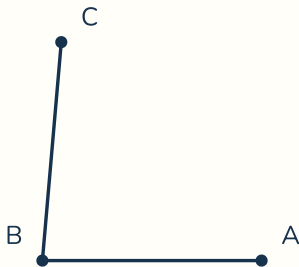
2 Copy angle ABC onto the ray from D.



3 Copy angle ABC onto the ray from D.



4 Copy angle ABC onto the ray from D.

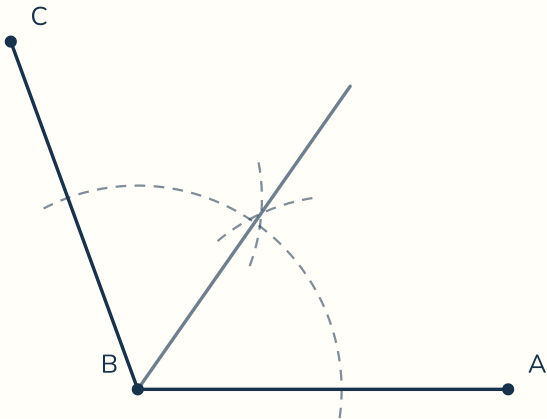


Compass constructions — Bisect an angle

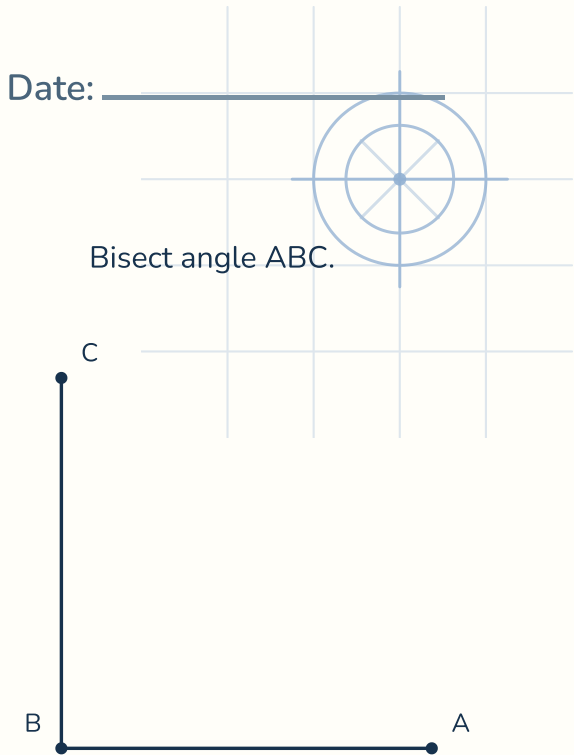
Name: _____

Bisect each angle. Leave your arcs showing.

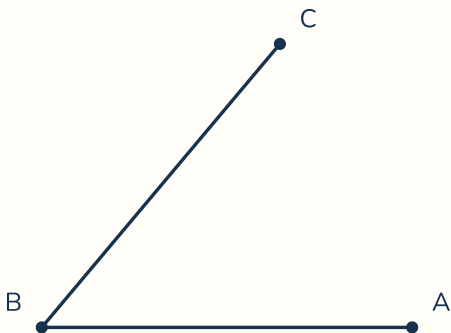
1 Bisect angle ABC.



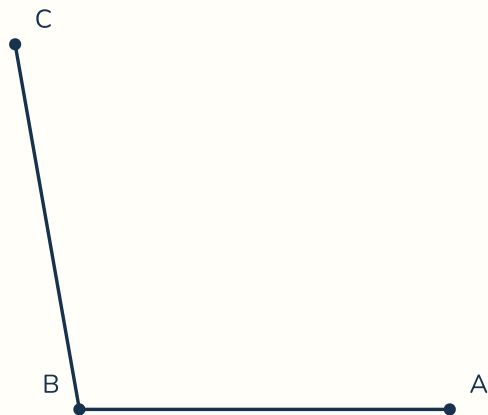
2 Bisect angle ABC.



3 Bisect angle ABC.



4 Bisect angle ABC.



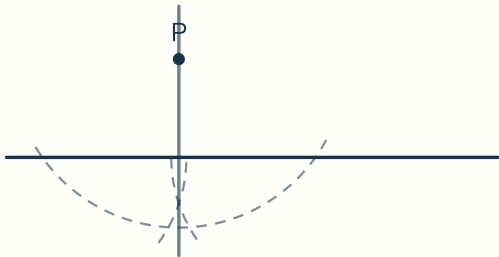
Compass constructions — Construct a perpendicular

Name: _____

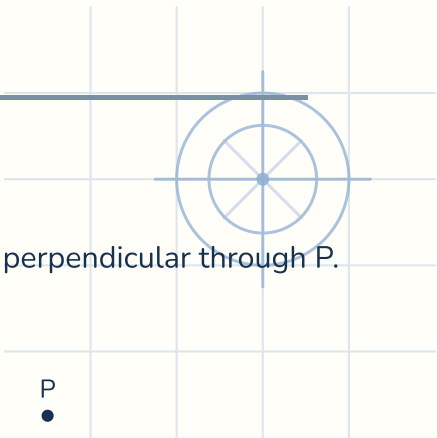
Date: _____

Construct each perpendicular through P. Leave your arcs showing.

1 Construct the perpendicular through P.



2 Construct the perpendicular through P.



3 Construct the perpendicular through P.

P



4 Construct the perpendicular through P.

P



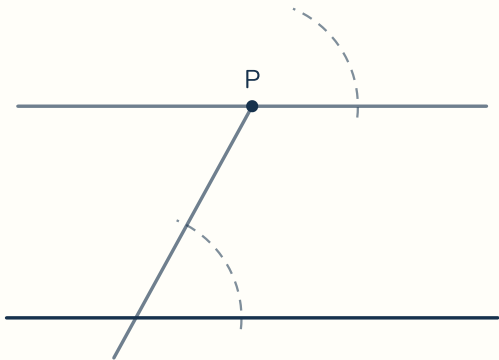
Compass constructions — Construct a parallel line

Name: _____

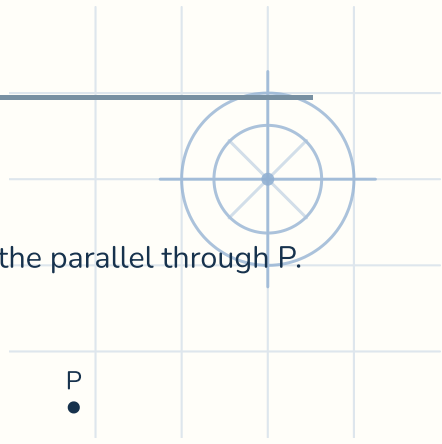
Date: _____

Construct each parallel through P. Leave your arcs showing.

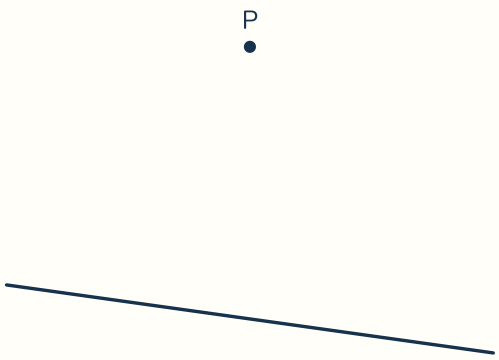
1 Construct the parallel through P.



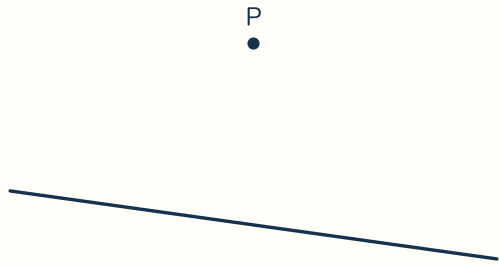
2 Construct the parallel through P.



3 Construct the parallel through P.



4 Construct the parallel through P.



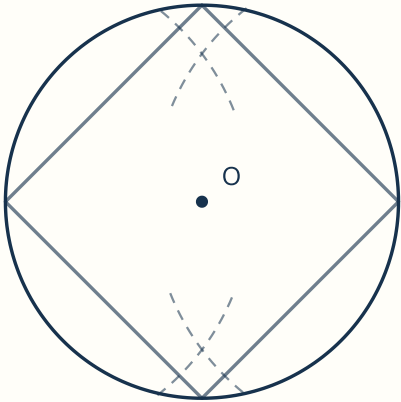
Compass constructions — Inscribe a regular polygon

Name: _____

Date: _____

Inscribe each shape in its circle. Leave your arcs showing.

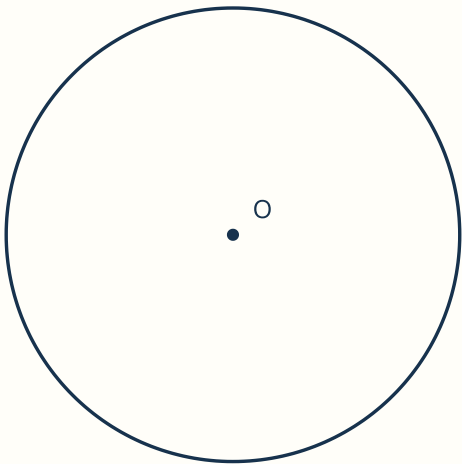
1 Inscribe a square.



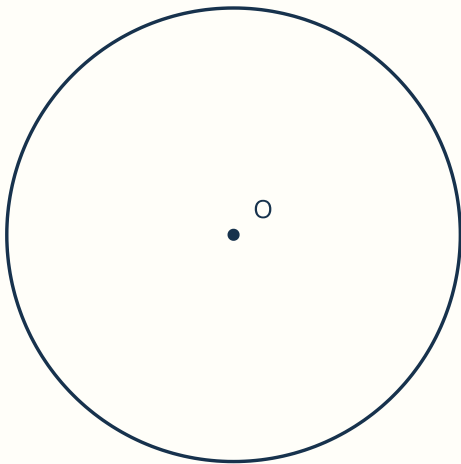
2 Inscribe a regular hexagon.



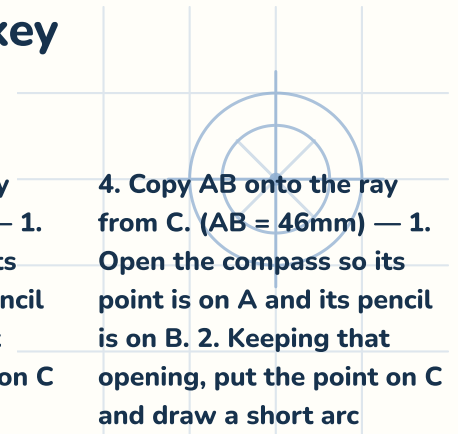
3 Inscribe a square.



4 Inscribe a regular hexagon.



Power Pack · Compass constructions — Answer key



Copy a segment

1. Copy AB onto the ray from C. (AB = 56mm) — 1. Open the compass so its point is on A and its pencil is on B. 2. Keeping that opening, put the point on C and draw a short arc crossing the ray. 3. Label the crossing D. CD is the same length as AB.

2. Copy AB onto the ray from C. (AB = 44mm) — 1. Open the compass so its point is on A and its pencil is on B. 2. Keeping that opening, put the point on C and draw a short arc crossing the ray. 3. Label the crossing D. CD is the same length as AB.

3. Copy AB onto the ray from C. (AB = 54mm) — 1. Open the compass so its point is on A and its pencil is on B. 2. Keeping that opening, put the point on C and draw a short arc crossing the ray. 3. Label the crossing D. CD is the same length as AB.

4. Copy AB onto the ray from C. (AB = 46mm) — 1. Open the compass so its point is on A and its pencil is on B. 2. Keeping that opening, put the point on C and draw a short arc crossing the ray. 3. Label the crossing D. CD is the same length as AB.

Perpendicular bisector

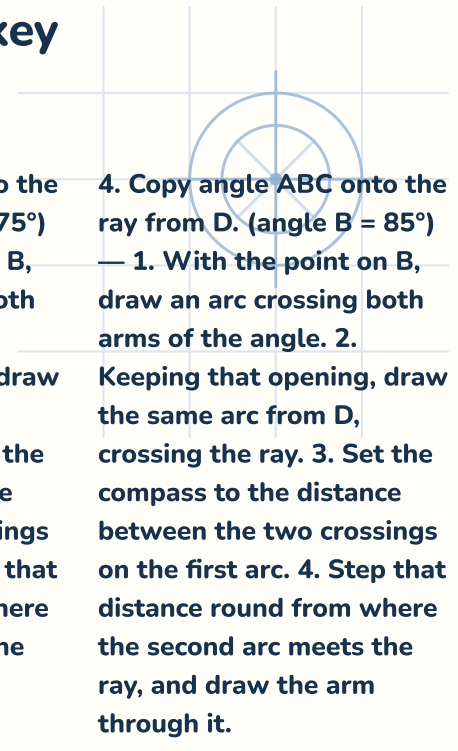
1. Construct the bisector of AB. (AB = 48mm) — 1. Open the compass to more than half of AB. 2. With the point on A, draw arcs above and below the segment. 3. Keeping the same opening, do the same from B. 4. Draw the line through the two crossings. It cuts AB in half, at a right angle.

2. Construct the bisector of AB. (AB = 50mm) — 1. Open the compass to more than half of AB. 2. With the point on A, draw arcs above and below the segment. 3. Keeping the same opening, do the same from B. 4. Draw the line through the two crossings. It cuts AB in half, at a right angle.

3. Construct the bisector of AB. (AB = 54mm) — 1. Open the compass to more than half of AB. 2. With the point on A, draw arcs above and below the segment. 3. Keeping the same opening, do the same from B. 4. Draw the line through the two crossings. It cuts AB in half, at a right angle.

4. Construct the bisector of AB. (AB = 40mm) — 1. Open the compass to more than half of AB. 2. With the point on A, draw arcs above and below the segment. 3. Keeping the same opening, do the same from B. 4. Draw the line through the two crossings. It cuts AB in half, at a right angle.

Power Pack · Compass constructions — Answer key



Copy an angle

1. Copy angle ABC onto the ray from D. (angle B = 65°)

— 1. With the point on B, draw an arc crossing both arms of the angle. 2.

Keeping that opening, draw the same arc from D, crossing the ray. 3. Set the compass to the distance between the two crossings on the first arc. 4. Step that distance round from where the second arc meets the ray, and draw the arm through it.

2. Copy angle ABC onto the ray from D. (angle B = 45°)

— 1. With the point on B, draw an arc crossing both arms of the angle. 2.

Keeping that opening, draw the same arc from D, crossing the ray. 3. Set the compass to the distance between the two crossings on the first arc. 4. Step that distance round from where the second arc meets the ray, and draw the arm through it.

3. Copy angle ABC onto the ray from D. (angle B = 75°)

— 1. With the point on B, draw an arc crossing both arms of the angle. 2.

Keeping that opening, draw the same arc from D, crossing the ray. 3. Set the compass to the distance between the two crossings on the first arc. 4. Step that distance round from where the second arc meets the ray, and draw the arm through it.

4. Copy angle ABC onto the ray from D. (angle B = 85°)

— 1. With the point on B, draw an arc crossing both arms of the angle. 2.

Keeping that opening, draw the same arc from D, crossing the ray. 3. Set the compass to the distance between the two crossings on the first arc. 4. Step that distance round from where the second arc meets the ray, and draw the arm through it.

Bisect an angle

1. Bisect angle ABC. (angle B = 110°)

— 1. With the point on B, draw an arc crossing both arms. Call the crossings P and Q. 2.

With the point on P, draw an arc inside the angle. 3.

Keeping the same opening, do the same from Q. 4.

Draw the line from B through where the two arcs cross. It halves the angle.

2. Bisect angle ABC. (angle B = 90°)

— 1. With the point on B, draw an arc crossing both arms. Call the crossings P and Q. 2.

With the point on P, draw an arc inside the angle. 3.

Keeping the same opening, do the same from Q. 4.

Draw the line from B through where the two arcs cross. It halves the angle.

3. Bisect angle ABC. (angle B = 50°)

— 1. With the point on B, draw an arc crossing both arms. Call the crossings P and Q. 2.

With the point on P, draw an arc inside the angle. 3.

Keeping the same opening, do the same from Q. 4.

Draw the line from B through where the two arcs cross. It halves the angle.

4. Bisect angle ABC. (angle B = 100°)

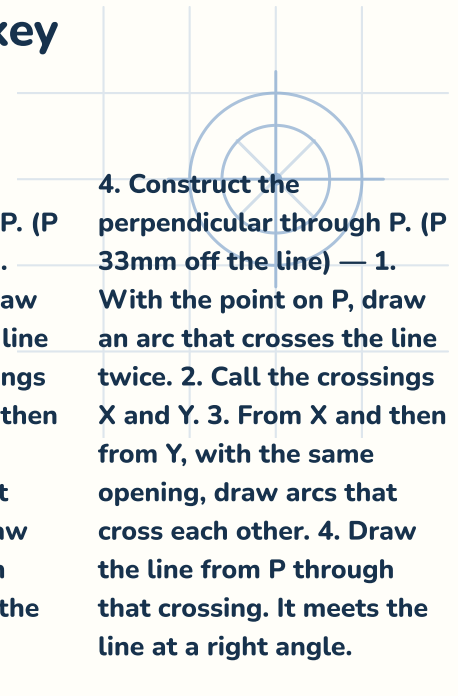
— 1. With the point on B, draw an arc crossing both arms. Call the crossings P and Q. 2.

With the point on P, draw an arc inside the angle. 3.

Keeping the same opening, do the same from Q. 4.

Draw the line from B through where the two arcs cross. It halves the angle.

Power Pack · Compass constructions — Answer key



Perpendicular through a point

1. Construct the perpendicular through P. (P 13mm off the line) — 1. With the point on P, draw an arc that crosses the line twice. 2. Call the crossings X and Y. 3. From X and then from Y, with the same opening, draw arcs that cross each other. 4. Draw the line from P through that crossing. It meets the line at a right angle.

2. Construct the perpendicular through P. (P 28mm off the line) — 1. With the point on P, draw an arc that crosses the line twice. 2. Call the crossings X and Y. 3. From X and then from Y, with the same opening, draw arcs that cross each other. 4. Draw the line from P through that crossing. It meets the line at a right angle.

3. Construct the perpendicular through P. (P 23mm off the line) — 1. With the point on P, draw an arc that crosses the line twice. 2. Call the crossings X and Y. 3. From X and then from Y, with the same opening, draw arcs that cross each other. 4. Draw the line from P through that crossing. It meets the line at a right angle.

4. Construct the perpendicular through P. (P 33mm off the line) — 1. With the point on P, draw an arc that crosses the line twice. 2. Call the crossings X and Y. 3. From X and then from Y, with the same opening, draw arcs that cross each other. 4. Draw the line from P through that crossing. It meets the line at a right angle.

Parallel through a point

1. Construct the parallel through P. (P 28mm from the line) — 1. Draw any line through P that crosses the given line. Call the crossing X. 2. Copy the angle at X onto the new line, with its vertex at P. 3. The arm you draw is parallel to the given line. 4. The two angles are corresponding angles, which is why the lines cannot meet.

2. Construct the parallel through P. (P 32mm from the line) — 1. Draw any line through P that crosses the given line. Call the crossing X. 2. Copy the angle at X onto the new line, with its vertex at P. 3. The arm you draw is parallel to the given line. 4. The two angles are corresponding angles, which is why the lines cannot meet.

3. Construct the parallel through P. (P 36mm from the line) — 1. Draw any line through P that crosses the given line. Call the crossing X. 2. Copy the angle at X onto the new line, with its vertex at P. 3. The arm you draw is parallel to the given line. 4. The two angles are corresponding angles, which is why the lines cannot meet.

4. Construct the parallel through P. (P 24mm from the line) — 1. Draw any line through P that crosses the given line. Call the crossing X. 2. Copy the angle at X onto the new line, with its vertex at P. 3. The arm you draw is parallel to the given line. 4. The two angles are corresponding angles, which is why the lines cannot meet.

Power Pack · Compass constructions — Answer key

Inscribe in a circle

1. Inscribe a square. (square, radius 26mm) — 1. Draw a diameter through the centre O. 2. Construct the perpendicular bisector of that diameter — it is a second diameter. 3. The two diameters meet the circle at four points. 4. Join the four points in order.

2. Inscribe a regular hexagon. (hexagon, radius 26mm) — 1. Keep the compass set to the circle's radius for the whole construction. 2. Put the point anywhere on the circle and mark an arc across it. 3. Move the point to that mark and repeat, all the way round — you get six marks. 4. Join the six marks in order.

3. Inscribe a square. (square, radius 30mm) — 1. Draw a diameter through the centre O. 2. Construct the perpendicular bisector of that diameter — it is a second diameter. 3. The two diameters meet the circle at four points. 4. Join the four points in order.

4. Inscribe a regular hexagon. (hexagon, radius 30mm) — 1. Keep the compass set to the circle's radius for the whole construction. 2. Put the point anywhere on the circle and mark an arc across it. 3. Move the point to that mark and repeat, all the way round — you get six marks. 4. Join the six marks in order.

