Choose and construct bisectors

Check Your Skill Level | 48 canonical questions | Stages 01-06

Stage 01: Recognise construction tools

Recognise

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. Which tool draws a circular arc of radius 3 cm centred at B?

2. Which tool draws a circular arc of radius 4 cm centred at P?

3. Which tool draws a circular arc of radius 4.5 cm centred at Q?

4. Which tool draws a circular arc of radius 5 cm centred at U?

5. Which tool draws a circular arc of radius 6 cm centred at R?

6. Which tool draws a circular arc of radius 2 cm centred at A?

7. Diagnose an error. Which tool draws a circular arc of radius 3 cm centred at B? A learner answers “Ruler”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. Which tool draws a circular arc of radius 4 cm centred at P?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 02: Interpret compass arcs

Interpret

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A segment is 6 cm long. Choose a radius from 3 cm, 4 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

2. A segment is 7 cm long. Choose a radius from 3.5 cm, 4 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

3. A segment is 8 cm long. Choose a radius from 4 cm, 5 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

4. A segment is 10 cm long. Choose a radius from 5 cm, 6 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

5. Which tool draws a circular arc of radius 2 cm centred at A?

6. Which tool draws a circular arc of radius 3 cm centred at B?

7. Diagnose an error. A segment is 6 cm long. Choose a radius from 3 cm, 4 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points. A learner answers “3 cm”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A segment is 7 cm long. Choose a radius from 3.5 cm, 4 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

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Stage 03: Construct a basic bisector

Perform

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. Draw equal-radius arcs from the endpoints of a 7 cm segment with radius 4 cm. Join both intersections. Name the constructed line and reproduce it on paper.

2. Draw equal-radius arcs from the endpoints of a 8 cm segment with radius 5 cm. Join both intersections. Name the constructed line and reproduce it on paper.

3. Draw equal-radius arcs from the endpoints of a 10 cm segment with radius 6 cm. Join both intersections. Name the constructed line and reproduce it on paper.

4. Draw equal-radius arcs from the endpoints of a 4 cm segment with radius 3 cm. Join both intersections. Name the constructed line and reproduce it on paper.

5. A segment is 5 cm long. Choose a radius from 2.5 cm, 3 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

6. A segment is 6 cm long. Choose a radius from 3 cm, 4 cm and 0.5 cm so equal-radius endpoint arcs intersect in TWO points.

7. Diagnose an error. Draw equal-radius arcs from the endpoints of a 7 cm segment with radius 4 cm. Join both intersections. Name the constructed line and reproduce it on paper. A learner answers “Angle bisector”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. Draw equal-radius arcs from the endpoints of a 8 cm segment with radius 5 cm. Join both intersections. Name the constructed line and reproduce it on paper.

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 04: Choose the correct locus

Select & Adapt

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A point must be equally distant from two fixed points. Which locus is needed?

2. A point must be equally distant from two intersecting straight boundary lines. Which locus is needed?

3. A point must be equally distant from two fixed points. Which locus is needed?

4. A point must be equally distant from two intersecting straight boundary lines. Which locus is needed?

5. Draw equal-radius arcs from the endpoints of a 6 cm segment with radius 4 cm. Join both intersections. Name the constructed line and reproduce it on paper.

6. Draw equal-radius arcs from the endpoints of a 7 cm segment with radius 4 cm. Join both intersections. Name the constructed line and reproduce it on paper.

7. Diagnose an error. A point must be equally distant from two fixed points. Which locus is needed? A learner answers “Angle bisectors”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A point must be equally distant from two intersecting straight boundary lines. Which locus is needed?

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Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 05: Justify equal distances

Connect & Justify

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A point lies on the perpendicular bisector of AB. Its distance to A is 10 cm. Find its distance to B in cm.

2. A point lies on the perpendicular bisector of AB. Its distance to A is 2 cm. Find its distance to B in cm.

3. A point lies on the perpendicular bisector of AB. Its distance to A is 3.5 cm. Find its distance to B in cm.

4. A point lies on the perpendicular bisector of AB. Its distance to A is 5 cm. Find its distance to B in cm.

5. A point must be equally distant from two intersecting straight boundary lines. Which locus is needed?

6. A point must be equally distant from two fixed points. Which locus is needed?

7. Diagnose an error. A point lies on the perpendicular bisector of AB. Its distance to A is 10 cm. Find its distance to B in cm. A learner answers “11”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A point lies on the perpendicular bisector of AB. Its distance to A is 2 cm. Find its distance to B in cm.

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 06: Locate a boundary in a plan

Transfer & Solve

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A fence must remain equally distant from two intersecting road edges inside their angle. Which single internal locus should it follow?

2. A fence must remain equally distant from two intersecting road edges inside their angle. Which single internal locus should it follow?

3. A fence must remain equally distant from two intersecting road edges inside their angle. Which single internal locus should it follow?

4. A fence must remain equally distant from two intersecting road edges inside their angle. Which single internal locus should it follow?

5. A point lies on the perpendicular bisector of AB. Its distance to A is 8 cm. Find its distance to B in cm.

6. A point lies on the perpendicular bisector of AB. Its distance to A is 10 cm. Find its distance to B in cm.

7. Diagnose an error. A fence must remain equally distant from two intersecting road edges inside their angle. Which single internal locus should it follow? A learner answers “Perpendicular bisector of endpoints”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A fence must remain equally distant from two intersecting road edges inside their angle. Which single internal locus should it follow?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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