

Just In Time Quick Check
Standard of Learning (SOL) G.4b

Strand: Reasoning, Lines, and Transformations

Standard of Learning (SOL) G.4b

The student will construct and justify the constructions of the perpendicular bisector of a line segment.

Grade Level Skills:

- Construct and justify the constructions of the perpendicular bisector of a line segment.

[Just in Time Quick Check](#)

[Just in Time Quick Check Teacher Notes](#)

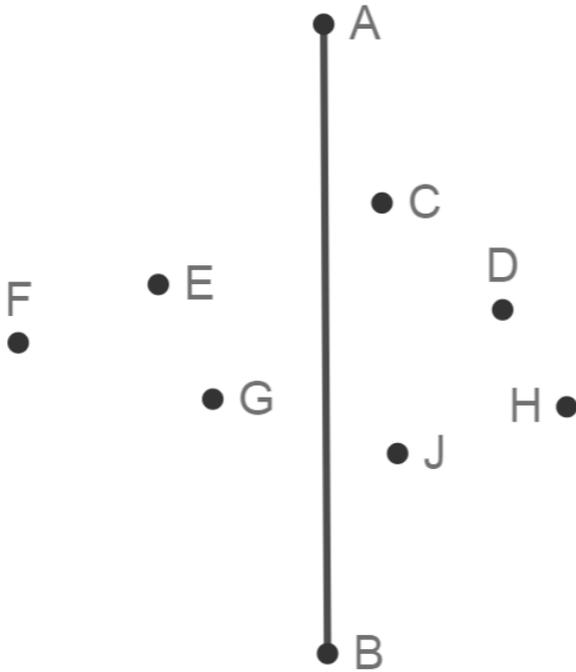
Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [G.4a-h - Constructions](#) (Word) / [PDF Version](#)
- VDOE Word Wall Cards: Geometry ([Word](#)) | ([PDF](#))
 - Perpendicular Lines
 - Perpendicular Bisector
 - Constructions
 - Perpendicular Bisector of a Line Segment
- Other VDOE Resources
 - [Geometry, Module 12, Topic 1 - Introduction to Constructions \[eMediaVA\]](#)
 - [Geometry, Module 12, Topic 3 - Constructing a Perpendicular Bisector of a Line Segment \[eMediaVA\]](#)

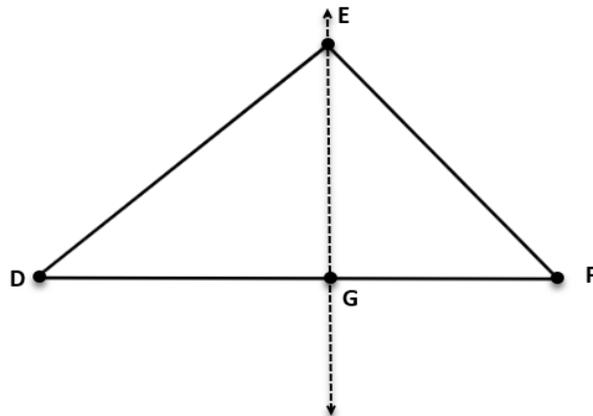
Supporting and Prerequisite SOL: [G.9](#)

SOL G.4b - Just in Time Quick Check

1. Construct the perpendicular bisector of line segment \overline{AB} . Then determine which points would lie on this perpendicular bisector.

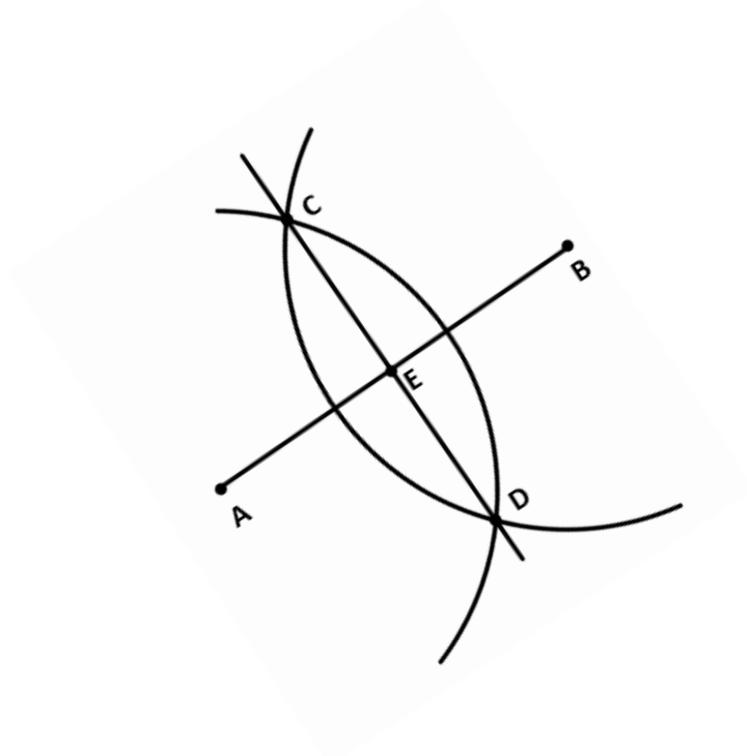


2. Use constructions to determine if \overleftrightarrow{EG} is a perpendicular bisector to \overline{DF} . Justify your answer.



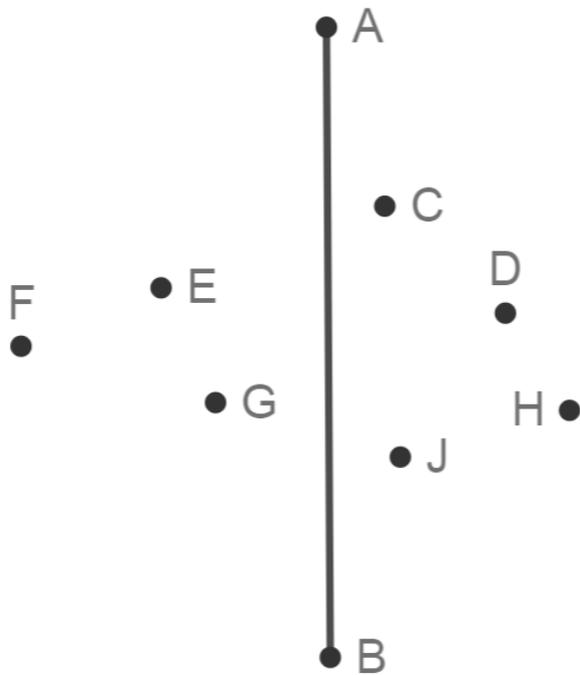
3. The figure illustrates the construction of a perpendicular bisector. Select each statement that must be true to prove this construction represents a perpendicular bisector of a line segment.

- a) The triangle formed by points A, C, and E is a right triangle
- b) $\overline{AE} \cong \overline{EB}$
- c) $\overline{CD} \cong \overline{AB}$
- d) $\overline{DA} \cong \overline{DB}$



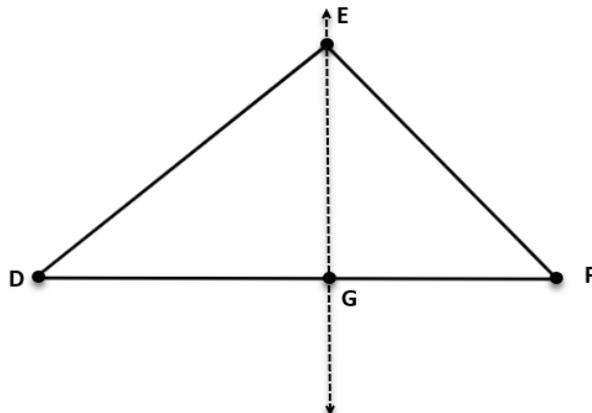
SOL G.4b - Just in Time Quick Check Teacher Notes
Common Errors/Misconceptions and their Possible Indications

1. Construct the perpendicular bisector of line segment \overline{AB} . Then determine which points would lie on this perpendicular bisector.



A common error for some students is to assume point C, D, E, G, or J appear to lie on a line perpendicular to \overline{AB} . This may indicate that the student has used visual cues to assume a point falls on a line that is perpendicular to \overline{AB} . Students often assume perpendicular lines are vertical and additionally may not be accustomed to using the compass at the top and bottom of a vertical line segment. Students should practice using multiple representations of lines, (horizontal, vertical and diagonal) or polygons in constructing a perpendicular bisector. Students may refer to the VDOE word wall cards for one representation of how to create the perpendicular bisector.

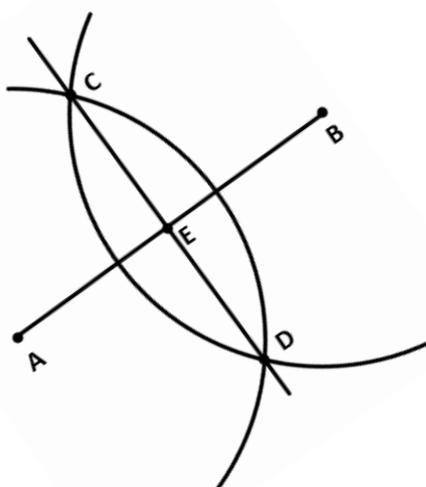
2. Use constructions to determine if \overline{EG} is a perpendicular bisector to \overline{DF} . Justify your answer.



A common error for some students is to assume that since line EG appears to be perpendicular to DF , then it is the perpendicular bisector. This may indicate that the student has used visual cues to assume that \overleftrightarrow{EG} is perpendicular to \overline{DF} and that $DG = GF$. Teachers are encouraged to remind students that you cannot assume properties in an illustration unless the picture is marked or the information is given. This is a great opportunity to review the vocabulary associated with perpendicular line versus perpendicular bisector, as well. The VDOE word wall cards may also be helpful in reinforcing the steps for constructing a perpendicular bisector.

3. The figure illustrates the construction of a perpendicular bisector. Select each statement that must be true to prove this construction represents a perpendicular bisector of a line segment.

- a) The triangle formed by points A, C, and E is a right triangle.
- b) $\overline{AE} \cong \overline{EB}$
- c) $\overline{CD} \cong \overline{AB}$
- d) $\overline{DA} \cong \overline{DB}$



A common misconception for some students is to assume all line segment relationships are true. This may indicate that the student is not familiar with the subsequent relationships formed by constructing a perpendicular bisector. Teachers can provide different experiences for students by having them complete the construction several times using a different compass radius each time. Teachers are encouraged to review the vocabulary associated with this construction. The eMediaVA video referenced offers justifications of the construction of the perpendicular bisector.