

**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](#)**

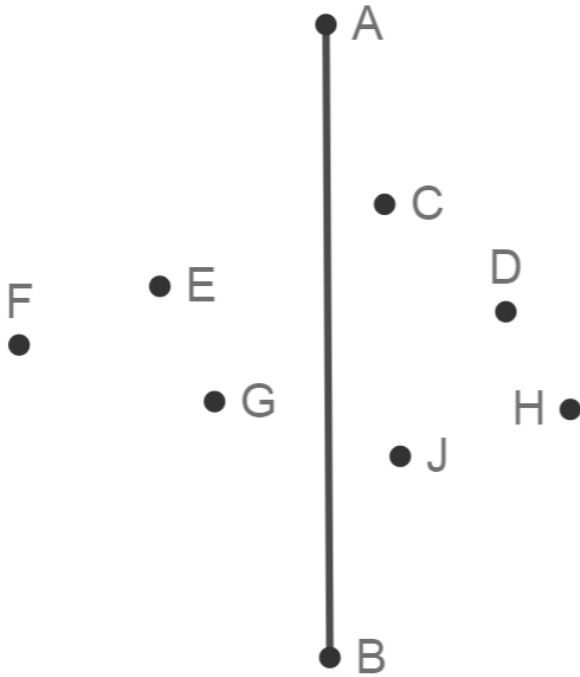
**Supporting Resources:**

- 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 \[eMediaVA\]](#)

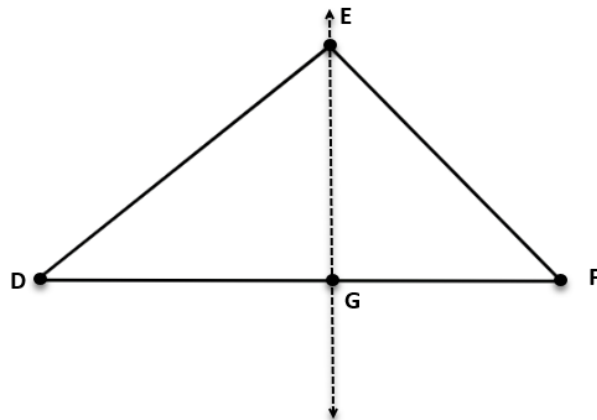
**Supporting and Prerequisite SOL:** [G.9](#)

### 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.

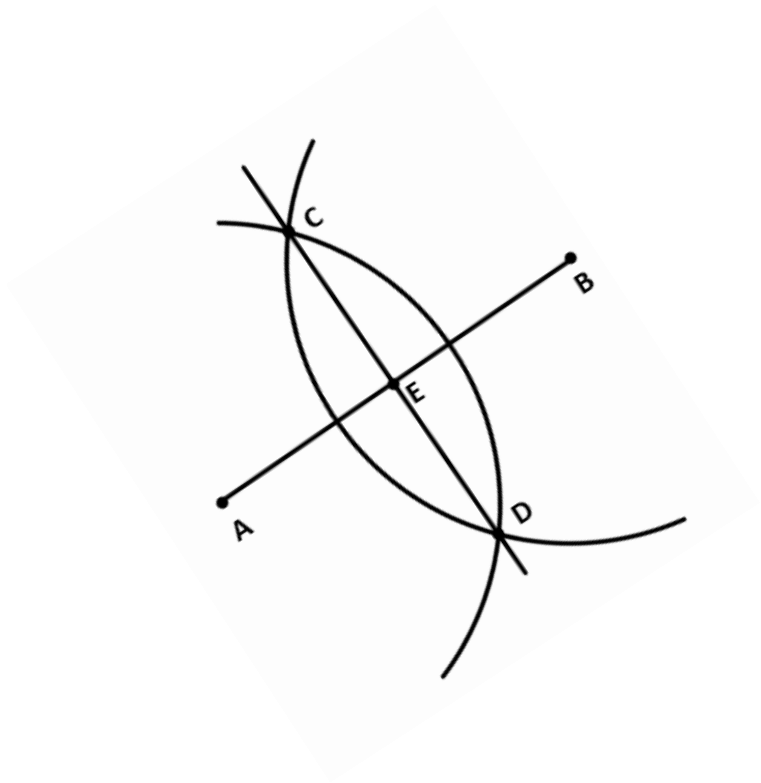


2. Use constructions to determine if  $\overleftrightarrow{EG}$  is a perpendicular bisector to  $\overline{DF}$ . Justify your answer.



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.

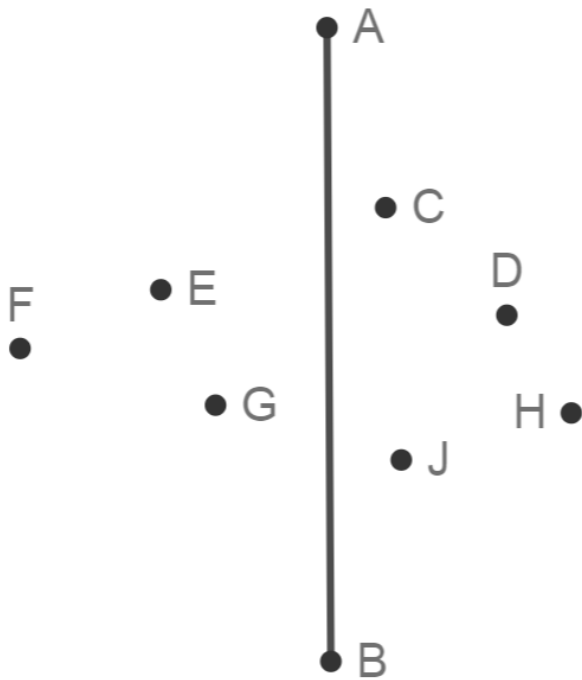
- a) The triangle formed by points A, C, and E is a right triangle
- b)  $\overline{AE} \cong \overline{EB}$
- c)  $\overline{CD} \cong \overline{AB}$
- d)  $\overline{DA} \cong \overline{DB}$



## SOL G.4b - Just in Time Quick Check Teacher Notes

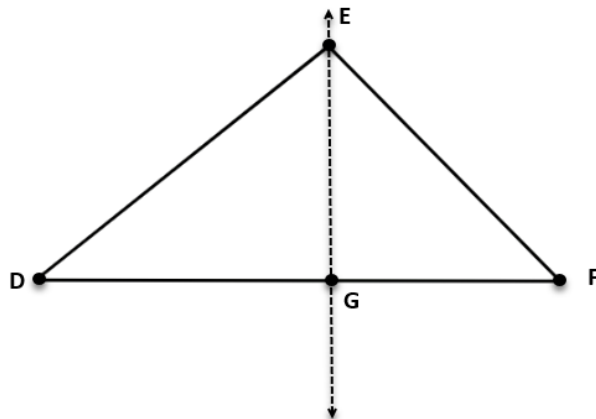
### Common Errors/Misconceptions and their Possible Indications

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.*

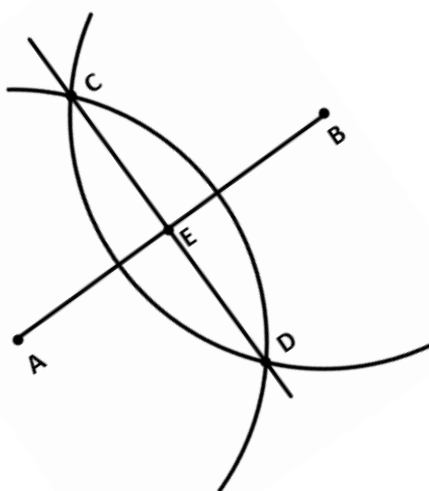
2. Use constructions to determine if  $\overline{EG}$  is a perpendicular bisector to  $\overline{DF}$ . Justify your answer.



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.