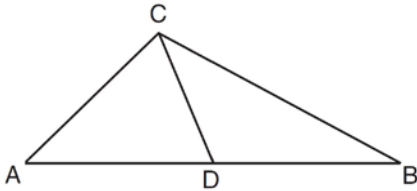


**G.SRT.B.4: Medians, Altitudes and Bisectors**

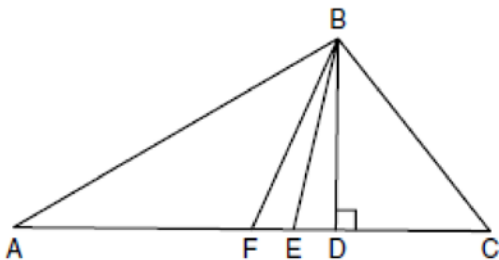
- 1 As shown in the diagram below,  $\overline{CD}$  is a median of  $\triangle ABC$ .



Which statement is *always* true?

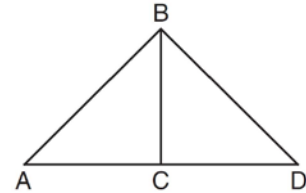
- 1)  $\overline{AD} \cong \overline{DB}$
- 2)  $\overline{AC} \cong \overline{AD}$
- 3)  $\angle ACD \cong \angle CDB$
- 4)  $\angle BCD \cong \angle ACD$

- 2 Given  $\triangle ABC$  with base  $\overline{AFEDC}$ , median  $\overline{BF}$ , altitude  $\overline{BD}$ , and  $\overline{BE}$  bisects  $\angle ABC$ , which conclusion is valid?



- 1)  $\angle FAB \cong \angle ABF$
- 2)  $\angle ABF \cong \angle CBD$
- 3)  $\overline{CE} \cong \overline{EA}$
- 4)  $\overline{CF} \cong \overline{FA}$

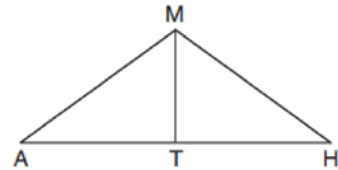
- 3 Given:  $\triangle ABD$ ,  $\overline{BC}$  is the perpendicular bisector of  $\overline{AD}$



Which statement can *not* always be proven?

- 1)  $\overline{AC} \cong \overline{DC}$
- 2)  $\overline{BC} \cong \overline{CD}$
- 3)  $\angle ACB \cong \angle DCB$
- 4)  $\triangle ABC \cong \triangle DCB$

- 4 In triangle  $\triangle MAH$  below,  $\overline{MT}$  is the perpendicular bisector of  $\overline{AH}$ .



Which statement is *not* always true?

- 1)  $\triangle MAH$  is isosceles.
- 2)  $\triangle MAT$  is isosceles.
- 3)  $\overline{MT}$  bisects  $\angle AMH$ .
- 4)  $\angle A$  and  $\angle TMH$  are complementary.

- 5 In  $\triangle ABC$ ,  $D$  is a point on  $\overline{AC}$  such that  $\overline{BD}$  is a median. Which statement must be true?
- 1)  $\triangle ABD \cong \triangle CBD$
  - 2)  $\angle ABD \cong \angle CBD$
  - 3)  $\overline{AD} \cong \overline{CD}$
  - 4)  $\overline{BD} \perp \overline{AC}$
- 6 Segment  $AB$  is the perpendicular bisector of  $\overline{CD}$  at point  $M$ . Which statement is always true?
- 1)  $\overline{CB} \cong \overline{DB}$
  - 2)  $\overline{CD} \cong \overline{AB}$
  - 3)  $\triangle ACD \sim \triangle BCD$
  - 4)  $\triangle ACM \sim \triangle BCM$
- 7 In  $\triangle ABC$ ,  $\overline{BD}$  is the perpendicular bisector of  $\overline{ADC}$ . Based upon this information, which statements below can be proven?
- I.  $\overline{BD}$  is a median.
  - II.  $\overline{BD}$  bisects  $\angle ABC$ .
  - III.  $\triangle ABC$  is isosceles.
- 1) I and II, only
  - 2) I and III, only
  - 3) II and III, only
  - 4) I, II, and III
- 8 In isosceles  $\triangle MNP$ , line segment  $NO$  bisects vertex  $\angle MNP$ , as shown below. If  $MP = 16$ , find the length of  $MO$  and explain your answer.



**G.SRT.B.4: Medians, Altitudes and Bisectors  
Answer Section**

1 ANS: 1 REF: 011303ge

2 ANS: 4  
Median  $\overline{BF}$  bisects  $\overline{AC}$  so that  $\overline{CF} \cong \overline{FA}$ .

REF: fall0810ge

3 ANS: 2 REF: 081301ge

4 ANS: 2 REF: 012012geo

5 ANS: 3 REF: 080608b

6 ANS: 1 REF: 012316geo

7 ANS: 4 REF: 081822geo

8 ANS:

$\triangle MNO$  is congruent to  $\triangle PNO$  by SAS. Since  $\triangle MNO \cong \triangle PNO$ , then  $\overline{MO} \cong \overline{PO}$  by CPCTC. So  $\overline{NO}$  must divide  $\overline{MP}$  in half, and  $MO = 8$ .

REF: fall1405geo