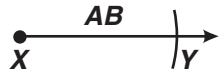
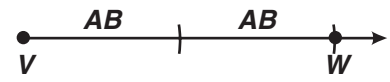
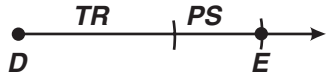
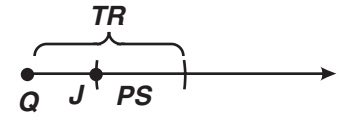
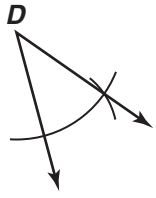
Answers for Lesson 1-7, pp. 47–49 Exercises

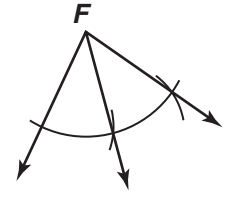
1. 

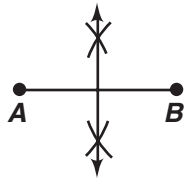
2. 

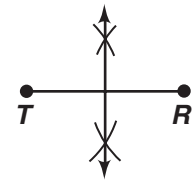
3. 

4. 

5. 

6. 

7. 

8. 

9. **a.** 11; 30

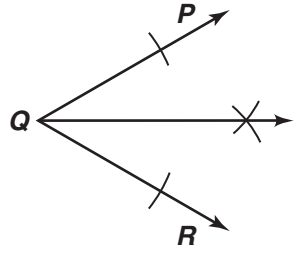
b. 30

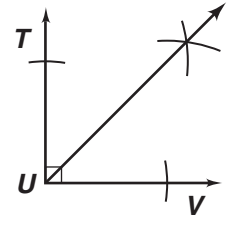
c. 60

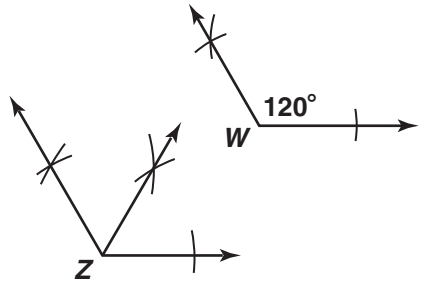
10. 5; 50

11. 15; 48

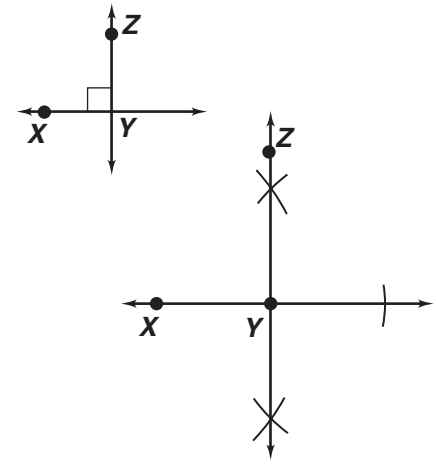
12. 11; 56

13. 

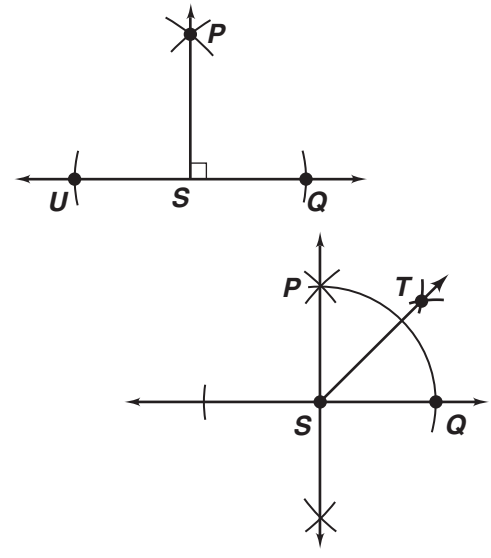
14. 

15. 

16. Find a segment on $\overleftrightarrow{XY}$ so that you can construct $\overleftrightarrow{YZ}$ as its $\perp$ bisector.



17. Find a segment on $\overleftrightarrow{SQ}$ so that you can construct $\overleftrightarrow{SP}$ as its $\perp$ bisector. Then bisect $\angle PSQ$.

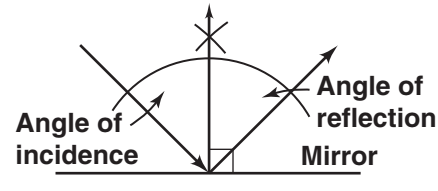


18. a. $\angle CBD$; 41

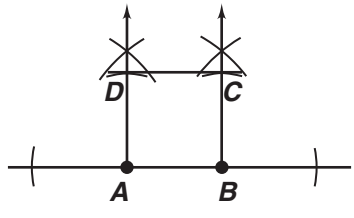
b. 82

c. 49; 49

19. a–b.



20. Locate points A and B on a line. Then construct a $\perp$ at A and B as in Exercise 16. Construct $\overline{AD}$ and $\overline{BC}$ so that $AB = AD = BC$.



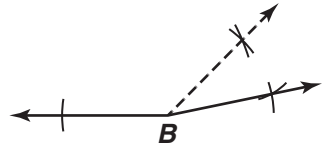
21. Explanations may vary. Samples are given.

a. One midpt.; a midpt. divides a segment into two ≅ segments. If there were more than one midpt. the segments wouldn't be ≅.

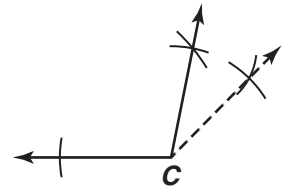
b. Infinitely many; there's only 1 midpt. but there exist infinitely many lines through the midpt. A segment has exactly one ⊥ bisecting line because there can be only one line ⊥ to a segment at its midpt.

c. There are an infinite number of lines in space that are ⊥ to a segment at its midpt. The lines are coplanar.

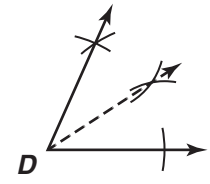
22.



23.



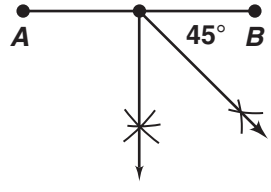
24.

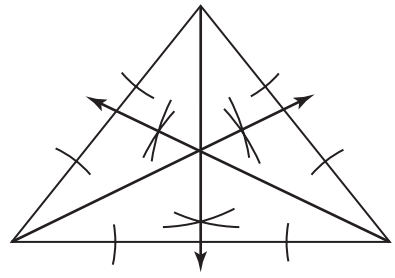


25. They are both correct. If you mult. each side of Lani's eq. by 2, the result is Denyse's eq.

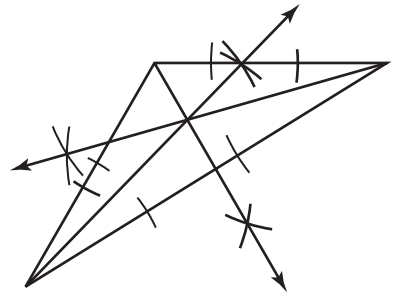
26. Open the compass to more than half the measure of the segment. Swing large arcs from the endpts. to intersect above and below the segment. Draw a line through the two pts. where the arcs intersect. The pt. where the line and segment intersect is the midpt. of the segment.

27.

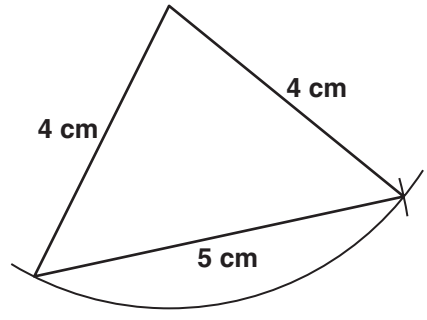


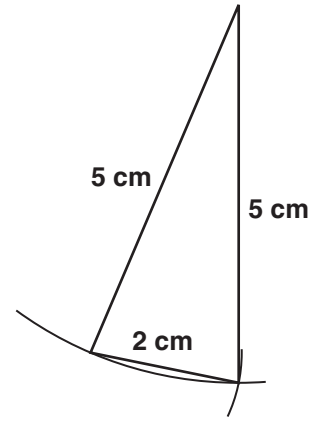
28. a. 

They appear to meet at one pt.

b. 

c. The three ∠ bisectors of a △ intersect in one pt.

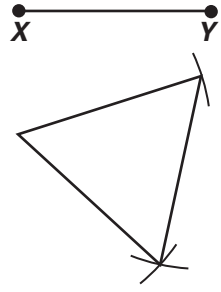
29. 

30. 

31. Impossible; the short segments are not long enough to form a △.

32. Impossible; the short segments are not long enough to form a △.

33. a.

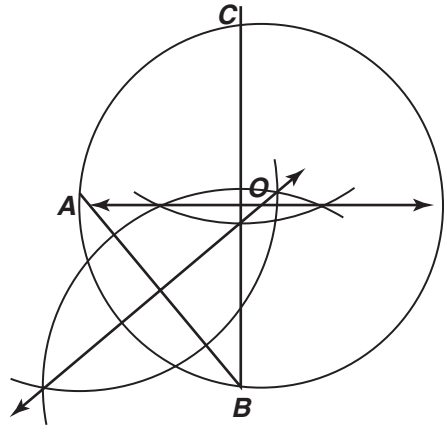


b. They are all 60°.

c. Answers may vary. Sample: Mark a pt., A. Swing a long arc from A. From a pt. P on the arc, swing another arc the same size that intersects the arc at a second pt., Q. Draw $\angle PAQ$. To construct a 30° $\angle$, bisect the 60° $\angle$.

34. A

35. a–b.



c. Point O is the center of the circle.

36. $\perp$; the line intersects.