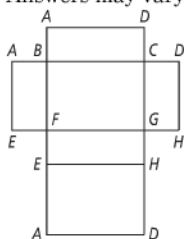


Florida Geometry
Lesson 1A-5 - Practice and Problem-Solving Exercises Solutions

15. The diagram shows no congruence markings on the angles, so the congruence statement may not be true.
17. Yes; since the angles are adjacent and together form a straight angle, you can conclude from the diagram that they are supplementary.
19. No; there are no markings to tell if the point C is in the middle of \overline{JD} . Measures on the diagram may be inaccurate unless stated.
20. Yes; the diagram shows that the angles share a vertex and side, and that they have no interior points in common, so you can conclude that the angles are adjacent and supplementary from the diagram.
25. \overline{BD} bisects $\angle ABC$, $\angle ABD \cong \angle DBC$. Thus,
 $m\angle ABD = m\angle DBC$
 $5x = 3x + 10$
 $2x = 10$
 $x = 5$
 By the Angle Addition Postulate,
 $m\angle ABC = m\angle ABD + m\angle DBC$
 $m\angle ABC = 5x + (3x + 10)$
 $m\angle ABC = 8x + 10$
 $m\angle ABC = 8(5) + 10$
 $m\angle ABC = 50$
27. \overline{BD} bisects $\angle ABC$, $\angle ABD \cong \angle CBD$. Thus,
 $m\angle ABD = m\angle CBD$
 $4x - 16 = 2x + 6$
 $2x = 22$
 $x = 11$
 By the Angle Addition Postulate,
 $m\angle ABC = m\angle ABD + m\angle CBD$
 $m\angle ABC = (4x - 16) + (2x + 6)$
 $m\angle ABC = 6x - 10$
 $m\angle ABC = 6(11) - 10$
 $m\angle ABC = 56$
28. \overline{BD} bisects $\angle ABC$, $\angle ABD \cong \angle CBD$. Thus,
 $m\angle ABD = m\angle CBD$
 $3x + 20 = 6x - 16$
 $3x = 36$
 $x = 12$
 By the Angle Addition Postulate,
 $m\angle ABC = m\angle ABD + m\angle CBD$
 $m\angle ABC = (3x + 20) + (6x - 16)$
 $m\angle ABC = 9x + 4$
 $m\angle ABC = 9(12) + 4$
 $m\angle ABC = 112$
29. Since the measure of the angle is twice the measure of its supplement, there are two angles that form a straight angle. If the measure of the angle is x , then you can write the equation $x + 2x = 180$ and solve for x : $3x = 180$; $x = 60$. So, the measures of the angles are 60 and 120.
31. Since $\angle ACF$ and $\angle ACD$ are a linear pair, they are supplementary by the Linear Pair Postulate, and $m\angle ACF + m\angle ACD = 180$. From the diagram, $m\angle ACF = 90$, so, $90 + m\angle ACD = 180$; $m\angle ACD = 90$.
32. By the Angle Addition Postulate, $m\angle BCD + m\angle ACB = m\angle ACD$. Since $m\angle ACD = 90$ from problem 33 and $m\angle ACB = 65$ is given, we can solve for $m\angle BCD$ by substitution:
 $m\angle BCD + 65 = 90$; $m\angle BCD = 25$.
34. By the Angle Addition Postulate, $m\angle ACF + m\angle ECF = m\angle ACE$. Since $\angle ECF$ and $\angle BCD$ are vertical angles, $m\angle ECF = m\angle BCD = 25$ from problem 34, and $m\angle ACF = 90$ from the diagram. So, $90 + 25 = m\angle ACE$; $m\angle ACE = 115$.
- 35a. Since $\angle RQS$ and $\angle TQS$ are a linear pair, they are supplementary by the Linear Pair Postulate, and $m\angle RQS + m\angle TQS = 180$. By substitution,
 $(2x + 4) + (6x + 20) = 180$
 $8x + 24 = 180$
 $8x = 156$
 $x = 19.5$
- 35b. From part (a), $x = 19.5$, so $m\angle RQS = 2(19.5) + 4 = 43$ and $m\angle TQS = 6(19.5) + 20 = 137$.
- 35c. Answers may vary. Sample:
 Since $\angle RQS$ and $\angle TQS$ are supplementary, you can check your answer by adding their measures to see if the sum is 180:
 $m\angle RQS + m\angle TQS = 43 + 137 = 180$.
36. Both students are correct: if you multiply both sides of equation $m\angle ABX = \frac{1}{2}m\angle ABC$ by 2, you get $2m\angle ABX = m\angle ABC$.
39. C
 The supplement of an angle forms a straight angle with the angle. So, the supplement of a right angle is a right angle.
40. I
 Using the Ruler Postulate, the distance between your house and the parking lot is $|-27 - 162| = |-189| = 189$ m.

41. Answers may vary. Sample:



When the net is folded, the vertices with the same letter meet.

45. Answers may vary. Sample:

Draw a ray with vertex G :



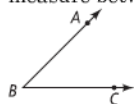
46. Answers may vary. Sample:

Draw a segment with endpoints C and D :



48. Answers may vary. Sample:

Draw an angle with vertex B and sides \overline{BA} and \overline{BC} that has a measure between 0 and 90:



49. Answers may vary. Sample:

Draw an angle with vertex S and sides \overline{SP} and \overline{ST} that has a measure of 90:

