9. If points are collinear, then they lie on the same line. If points lie on the same line, then they are collinear.

10. This month is June if and only if next month is July.

11. Two angles are vertical angles if and only if their sides are opposite rays.

12. The prefix bi- means "two."

13. The word *gigantic* is not precise.

14. The second statement is a better definition. A counterexample for the first statement is any two nonadjacent right angles.

15. Yes; it uses clearly understood terms, is precise, and is reversible. You can write the two statements as two true conditional statements that are converses: If a band of tough tissue connects bones or holds organs in place, then it is a ligament. If a band of tough tissue is a ligament, then it connects bones or holds organs in place.

16. No; a straight angle has a measure greater than 90, but it is not an obtuse angle.

18. That statement, as a biconditional, is "An angle is a right angle if and only if it is greater than an acute angle." Counterexamples to that statement are obtuse angles and straight angles.

19. D

20. A point is in Quadrant III if and only if it has two negative coordinates.

21. The sum of the digits of an integer is divisible by 9 if and only if the integer is divisible by 9.

22. A number is a whole number if and only if it is a nonnegative integer.

23. A figure is a hexagon if and only if it is a six-sided polygon.

24. good definition

25. No; V could fit that description.

26. good definition

27. good definition

28. If $\angle A$ and $\angle B$ are a linear pair, then $\angle A$ and $\angle B$ are supplementary.

29. If $\angle A$ and $\angle B$ are a linear pair, then $\angle A$ and $\angle B$ are adjacent angles.

30. If $\angle A$ and $\angle B$ are a linear pair, then $\angle A$ and $\angle B$ are adjacent and supplementary angles.

31. $\angle A$ and $\angle B$ are a linear pair if and only if $\angle A$ and $\angle B$ are adjacent and supplementary angles.