

Geo
Unit 2
Sec 2.2

Each conditional statement below is true. Write its converse. If the converse is also true, combine the statements as a biconditional.

2-24 even
38-40

1. If two segments have the same length, then they are congruent.
- x^2 2. Algebra If $x = 12$, then $2x - 5 = 19$.
3. If a number is divisible by 20, then it is even.
- x^2 4. Algebra If $x = 3$, then $|x| = 3$.
5. In the United States, if it is July 4th, then it is Independence Day.
- x^2 6. Algebra If $x = -10$, then $x^2 = 100$.


Write the two statements that form each biconditional.

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| 7. A line bisects a segment if and only if the line intersects the segment only at its midpoint. | 8. An integer is divisible by 100 if and only if its last two digits are zeros. |
| 9. You live in Washington, D. C., if and only if you live in the capital of the United States. | 10. Two lines are parallel if and only if they are coplanar and do not intersect. |
| 11. Two angles are congruent if and only if they have the same measure. | x^2 12. Algebra $x^2 = 144$ if and only if $x = 12$ or $x = -12$. |

Test each statement below to see if it is reversible. If so, write it as a true biconditional. If not, write *not reversible*.

13. A perpendicular bisector of a segment is a line, segment, or ray that is perpendicular to a segment at its midpoint.
14. Parallel planes are planes that do not intersect.
15. A Tarheel is a person who was born in North Carolina.
16. A rectangle is a four-sided figure with at least one right angle.
17. A midpoint of a segment is a point that divides a segment into two congruent segments.

Is each statement below a good definition? If not, explain.

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| 18. A cat is an animal with whiskers. | 19. A dog is a good pet. |
| 20. A segment is part of a line. | 21. Parallel lines do not intersect. |
| 22. A square is a figure with two pairs of parallel sides. | 23. An angle bisector is a ray that divides an angle into two congruent angles. |
-  24. Language Arts Is the following a good definition? Explain.
An obtuse angle is an angle whose measure is greater than 90.

Write each statement as a biconditional.

38. Congruent angles are angles with equal measure.
39. When the sum of the digits of an integer is divisible by 9, the integer is divisible by 9 and vice versa.
40. The whole numbers are the nonnegative integers.