2.1-2.4 Quiz Review

Sketch the next figure in the pattern.

1.

2.

3.

Describe a pattern in the numbers. Write the next number in the pattern.

4. 26, 23, 20, 17, 14,... \( \text{subtracting 3 every time} \)

5. 3, -9, 27, -81,... \( \text{multiply by -3 every time} \)

6. 2, 6, 18, 54,... \( \text{multiply by 3 every time} \)

Show the conjecture is false by finding a counterexample.

7. Any four sided polygon is a square.

Could be a parallelogram

8. The square root of a number \( x \) is always less than \( x \).

\( \sqrt{12} \approx 1.07 \)

\( .707 > .5 \)
Write the conditional statement in if-then form.

You have a fever if your body temperature is 103 degrees Fahrenheit.

If your body temperature is 103 degrees Fahrenheit, then you have a fever.

10. A deer is albino if it has white fur and pink eyes.

If a deer is albino, then it has white fur and pink eyes.

For the given statement, write the if-then form, the converse, the inverse, and the contrapositive, and indicate whether each statement is true or false.

11. When it rains, it pours.

If it rains, then it pours. - False

Converse: If it pours, it rains. - True

Inverse: If it doesn't rain, then it doesn't pour - True

Contrapositive: If it does not pour, then it does not rain. - False

12. Any four collinear points are coplanar.

If you have any four collinear points, then they are coplanar.

Converse: If four points are coplanar, then they are collinear. - False

Inverse: If four points are not collinear, then they are not coplanar. - False

Contrapositive: If four points are not coplanar, then they are not collinear. - False

Use the diagram and the definitions or properties you have learned to explain why the statement is true.

13. \( \angle AEB \) and \( \angle BEC \) are adjacent angles.

\[ \text{Share a vertex and common side.} \]

14. \( \angle AEB \) and \( \angle BEC \) are a linear pair.

\[ \text{Adjacent angles that add up to 180°} \]

15. \( m\angle AEB + m\angle BEC = 180 \) degrees.

\[ \text{Definition of a linear pair} \]

16. \( \angle BEC \) is a right angle.

\[ 180 - 90 = 90° \]

Also, \( m\angle BEC \neq m\angle AEB \) are a linear pair.
The book is nonfiction.

21. If a book is a biography, then it is nonfiction. You are reading a biography.
   - $x < -12$
   - $x > -12$

20. If $x > 12$, then $x < -12$. The value of $x$ is 15.

19. If the measure of an angle is 90 degrees, then it is a right angle. The measure of angle A is 90 degrees.

Angle A is a right angle.

8.3: You have an equilateral polygon. It and only it is equilateral polygon.

Converse: If all sides are congruent, then you have an equilateral polygon.

If you have an equilateral polygon, then all sides are congruent.

The sum of their measures is 90 degrees.

If the sum of their measures is 90 degrees, then the two angles are complementary. Two angles are complementary if and only if the sum of their measures is 90 degrees.

The converse of the definition of an angle and the sum of their measures is 90 degrees.

Finally, write the converse of the definition as a conditional statement.
If you study hard, you will pass all of your classes. You pass all of your classes, you will graduate.

24. If a rectangle has four equal side lengths, then it is a square. If a polygon is a square, then it is a regular polygon.

If a rectangle has four equal sides, then it is a regular polygon.

25. If you play the clarinet, then you play a woodwind instrument. If you play a woodwind instrument, then you are a musician.

If you play the clarinet, then you are a musician.

26. If a creature is a wombat, then it is a marsupial. If a creature is a marsupial, then it has a pouch.

If a creature is a wombat, then it has a pouch.

27. Error Analysis:
Describe and correct the error in the argument: "If two angles are a linear pair, then they are supplementary. Angles C and D are supplementary, so the angles are a linear pair."

Angles C and D may not be adjacent.