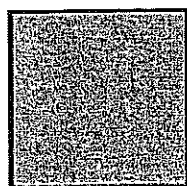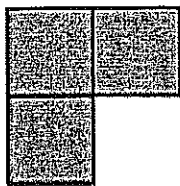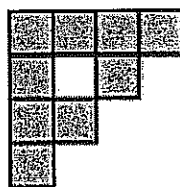1. The first 4 stages of certain fractal are shown below.

Stage 1   Stage 2   Stage 3   Stage 4

In each stage after the first, each square is divided into 4 squares, and then the bottom right square is removed.

If the pattern continues, which expression can be used to find the number of shaded square units Stage n contains?

A.) $3n$

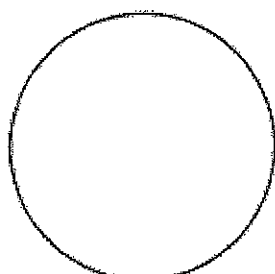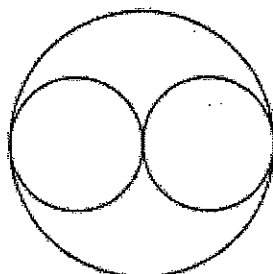B.) 3^n

C.) n^3

D.) 3^{n-1}
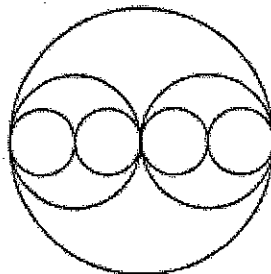
2. The figure below shows the first 3 stages of a fractal.

How many circles will the nth stage of this fractal contain?

Stage 1   Stage 2   Stage 3

A.) $2n$

B.) $2n-1$

C.) 2^n

D.) 2^n-1

3. The table below shows information about a pattern of regular polygons with certain numbers of sides. If the pattern continues, what is the perimeter of a regular polygon with 8 sides?

Sides	Perimeter
3	30 cm
4	36 cm
5	40 cm
6	42 cm

A.) 40

B.) 44

C.) 48

D.) 80

4. $6x+8+2(4x-2)+2(8x+21-(6x+5))=180$

A.) x=8

B.) x=6

C.) x=4

D.) x= 7

5. The blocks below are arranged in sequence to show a pattern.

Stage 4

Stage 3

Stage 2

Stage 1

Which expression can be used to determine the number of blocks at Stage n?

A.) $\sqrt{n}$

B.) n^2

C.) 2n
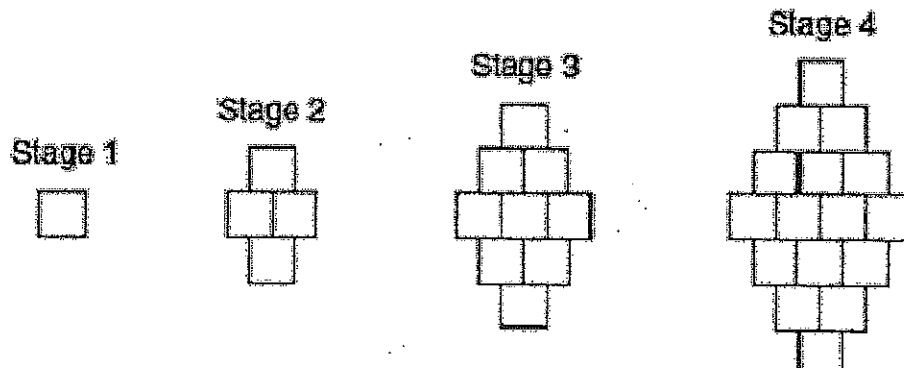
D.) (n-1)+1

6. Draw the next picture in the sequence.
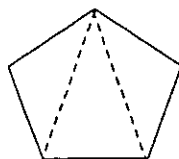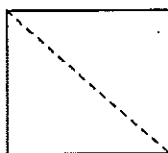
7. Write the following statement as a conditional and identify the hypothesis and conclusion.

Every Geometry student has a project to complete.

_____

8. Write the following statement as a conditional and identify the hypothesis and conclusion.

An angle of 40° is acute

_____

9. Truth Value. Tell whether the statement is true or false. If false, give a counter example.

If you are a senior, then you will graduate this year.

_____

10. From the given statement write the conditional (when necessary) and converse. Then give the truth value of the converse, if false give a counter example

An angle that measures 95° is not acute

12. Conditional: _____
        *don't forget to identify the hypothesis and conclusion.

13. Converse:_____

14. Truth Value (of the converse)_____

15. Counter example (if number 14 is false)_____

16. Identify the hypothesis and conclusion:

If it is the 4th of July (in the U.S.) then it is a holiday.
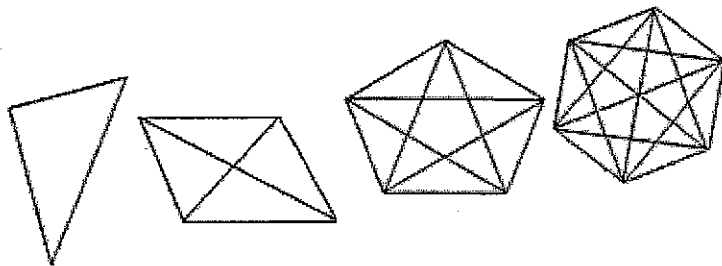
17. Converse: _____

18. Truth Value (of the converse): _____

19. Counter example: (if number 18 is false)_____

20. Use the geometric and numeric pattern below to develop an algebraic expression to answer the following question.

What is the total number of diagonals in a dodecagon?

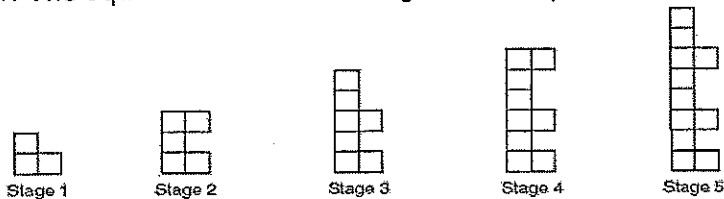| Polygon	Triangle	Quadrilateral	Pentagon	Hexagon		n-gon
Total # of diagonals	0	2	5	9		

A.) $2n-6$

C.) $n(n-3)$

B.) $\dfrac{n(n-3)}{2}$

D.) $\dfrac{n(2n-6)}{2}$

21. The squares below are arranged in a sequence to show a pattern.

Stage 1   Stage 2   Stage 3   Stage 4   Stage 5

The table below shows the perimeter of each figure formed by the squares in the five pattern stages.

Stage, n	Perimeter, P (units)
1	8
2	12
3	16
4	20
5	24

Each side of a square represents 1 unit. If this pattern were to continue, which expression could be used to determine the perimeter of the figure at stage n ?

A.) $n^2 + 7$

C.) $2(n^2 + 3)$

B.) $4(n+1)$

D.) $-2(n-1) + 8n$

22. The shaded squares below are arranged in a sequence to show a pattern.

Stage 1   Stage 2   Stage 3   Stage 4
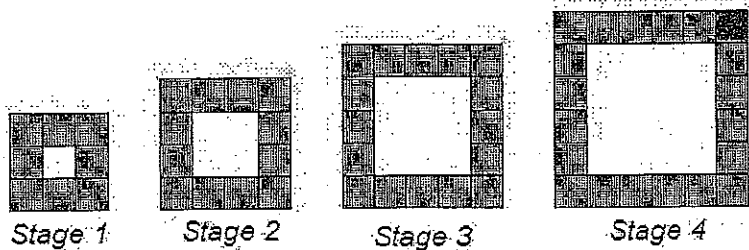
If the pattern continues, which expression can be used to find the number of shaded squares in the nth Stage?

A.) n+4

C.) 4(n+1)

B.) 4n+1

D.) 2(n+3)

23. Write and **illustrate** a counterexample to disprove the statement, "If two lines are perpendicular to the same line, they are always parallel to each other."

Geometry
Review Cont'd Logic & Algebra Review

Name_____
Date_____ Period_____

Solve for x. Show all your work and box your answer to receive full credit:

24.) $\dfrac{6}{11}x = 12$	25.) $\dfrac{x+2}{5} = 3$	26.) $5(2x-6)+3x =12$

Use the given statement to answer the following questions.

"December is the last month of the year."

27.) What is the conditional statement?

28.) What is the converse statement?

29.) What is the contrapositive (the negated converse)?

30.) What is the inverse (the negated conditional)?

31.) What is the bi-conditional statement?

| 32.) What is the converse of the following conditional statement?: "If it is the last month of the year, then it is December."

Give truth value of conditional and converse

What is the inverse?

What is the truth value of the inverse? | Find the 6th and 7th term in the pattern:

_____ 33.)   1, 6, 16, 31, 51, …, …

_____ 34.)   3, -12, 48, -192, 768, …, …

_____ 35.)   2, 6, 8, 14, 22, …, …

36.) Use Law of Syllogism to make a Conclusion
If you read a good book, then you enjoy yourself
If you enjoy yourself, then your time is spent well.
Conclusion: _____ | 37.) Use Law of detachment to make a conclusion.

If there is lightning, then it is not safe to be out in the open.
Marla sees lightning from the soccer field.

Conclusion: _____

_____ |