Semester 1
Review Worksheet #1

Honors Geometry

Name: Answer Key

Chapter 1

Part A

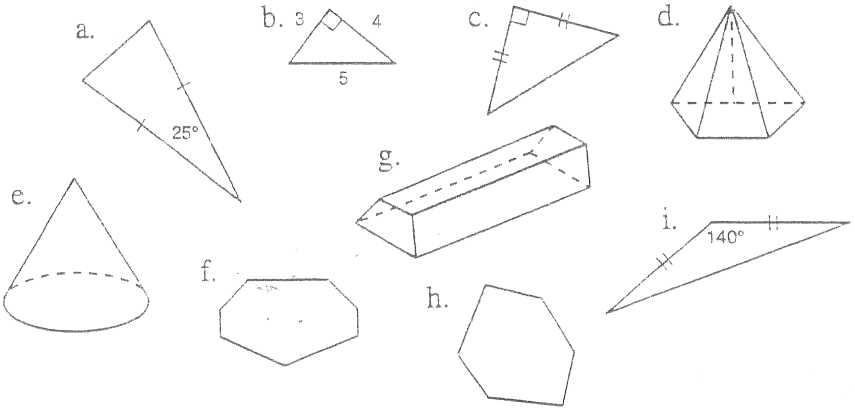
Identify each statement as true or false.

1. A polygon with ten sides is called a dodecagon. False
2. If $\overleftrightarrow{AB}$ intersects $\overleftrightarrow{CD}$ at point P, then $\angle APC$ and $\angle BPD$ form a linear pair of angles. False
3. A rhombus is a quadrilateral having exactly one pair of parallel sides. False
4. If two lines do not intersect, then they are not necessarily parallel. True
5. A diagonal is a line segment in a polygon connecting any two vertices. False
6. A parallelogram is a quadrilateral with all the angles equal in measure. False
7. "The line segment from P to Q" is written in symbolic form as $\overleftrightarrow{PQ}$. False
8. "The ray from L through point M" is written in symbolic form as $\overrightarrow{LM}$. True
9. "The length of line segment PQ" is written in symbolic form as $\overline{PQ}$. True
10. The vertex of angle RST is point S. True
11. If the sum of the measures of two angles is 90°, then the two angles are complementary. True
12. A line segment from a vertex of a triangle to the opposite side, perpendicular to that side, is called an altitude. True
13. An acute angle is an angle whose measure is less than 90°. True
14. The three basic building blocks (undefined terms) of geometry are planes, points, and lines. True
15. A scalene triangle is a triangle with two sides the same length. False

Part B

Match each term on the left with its figure on the right.

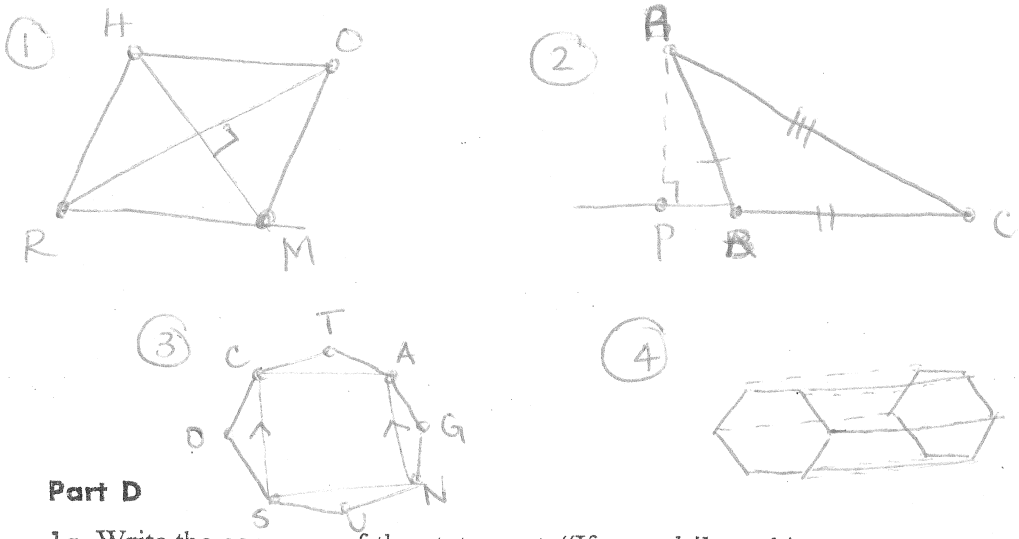
1. Right scalene triangle B
2. Acute isosceles triangle A
3. Heptagon F
4. Pyramid D
5. Prism G



Part C

Sketch, mark, and label each figure.

1. Rhombus *RHOM* with $\overline{RO} \perp \overline{HM}$
2. Scalene obtuse ΔABC with obtuse angle *B* and altitude $\overline{AP}$
3. An octagon *OCTAGNUS* with vertices *S*, *C*, *A* and *N* joined to form trapezoid *SCAN* such that $\overline{SC} \parallel \overline{NA}$
4. A prism with a hexagonal base



Part D

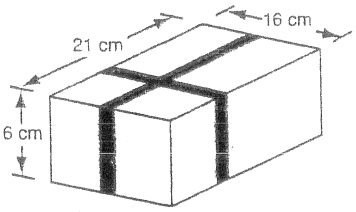
1a. Write the converse of the statement: "If a quadrilateral is a square, then it is equilateral."

b. Determine if the converse is true or false. If it is false, give a counterexample.

(a) If a quadrilateral is equilateral, then it is a square.

(b) False, rhombus

2. The box on the right is wrapped with two strips of ribbon as shown. What length of ribbon was needed to decorate the box?



12(2) + 6(2) + 6(2) + 16(2)

= 98 cm

3. At one point in a drag race, Charlie was 15 feet behind Sally and 18 feet ahead of Lucy. Lucy was trailing Linus by 30 feet. Sally was ahead of Linus by how many feet?

3 Feet

Chapter 2 (part 1)

Part A

Reasoning that is based on observations. ①Observing data ②recognize patters ③make conjectures

1. What is inductive reasoning? (Make sure you list the three steps in the process.)
2. Which story below illustrates good inductive reasoning. Which story illustrates poor inductive reasoning. Explain your answers.

Story A

Susan has gotten her first bicycle. She fell off several times after trying to balance at a standstill and then her parents gave her a push several times to start her off and she balanced for at least 20 feet. She conjectured that it was easier for her to keep her balance if she kept the bike moving.

She came to this conclusion after several trials and has a correlation.

Story B

One day Rudie Red noticed that he hit a home run after kicking the ground twice and spitting once. He conjectures that he should kick the ground twice and spit once before he comes to bat each time to ensure a home run.

There is no relationship between swinging a bat w/enough power to hit a homerun and kicking/spitting on the ~~be~~ground.

Find the missing term of each sequence.

3. 1, 3, 4, 7, 11, –?–, 29, 47, . . .

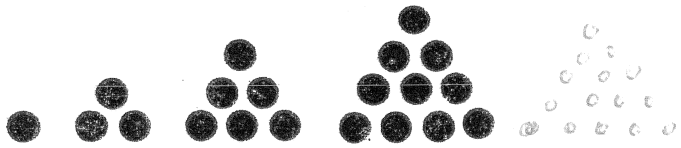
18

4. Z, 0, X, 1, U, 2, Q, –?–, L, 4, F, . . .

3

Draw the next shape in each pattern.

5.



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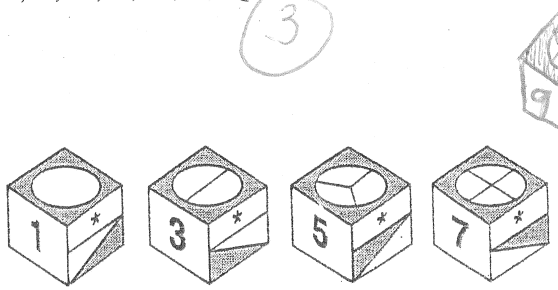

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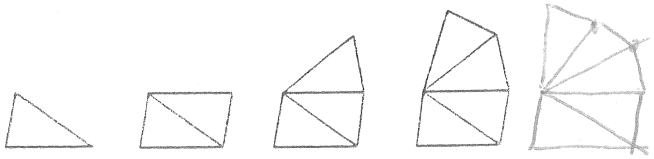
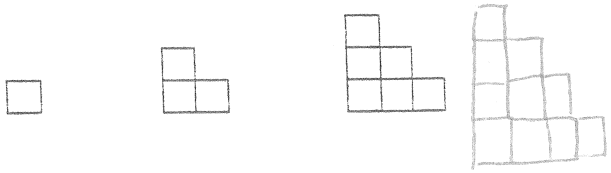


8.

9.



Find the value of the *n*th term in each sequence.

10.

Term	1	2	3	4	5	6	7	…	*n*
Value	6	7	8	9	10	11	12	…	–?–

+1 +1 $= n+5$

11.

Term	1	2	3	4	5	6	7	…	*n*
Value	0	3	8	15	24	35	48	…	–?–

0 1 2 3 n-1
2 3 4 5 n+1

$= (n-1)(n+1)$

12.

Term	3	4	5	6	7	8	9	…	*n*
Value	3	6	10	15	21	28	36	…	–?–

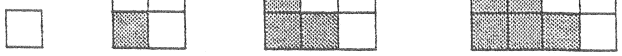
6 12 20 30

$= \frac{(n-1)n}{2}$

13. Squares in a square array

2 3 · 3 4 4 5

n-1
n



Squares on a side	1	2	3	4	5	6	…	35	…	*n*
Unshaded squares	1	3	6	10	15	–?–	…	–?–	…	–?–

2 6 12 20

$\frac{n(n+1)}{2}$

14. How many two-person conversations are possible at a party of 28 people?

1 2 3 4 = n
2 3 4 5 = n+1

378 conv.

15. How many diagonals can be drawn from one vertex of an *n*-sided polygon?

n-3

16. If a polygon has 50 sides, how many diagonals will it have?

47 diagonals

Part B: Identify each statement as *true* or *false*.

1. If two parallel lines are cut by a transversal then the alternate interior angles are congruent. True
2. There is only one line that you can construct parallel to a line that also passes through point P not on the line. True
3. The compass is a tool used to measure the size of an angle in degrees. False
4. If two angles are complementary then the sum of their measures is 90°. True
5. *Line*, *ray*, and *angle* are all undefined terms in geometry. False
6. If two parallel lines are cut by a transversal, then corresponding angles are congruent, alternate interior angles are congruent, and alternate exterior angles are congruent. True
7. If two lines are cut by a transversal forming pairs of supplementary corresponding angles, supplementary alternate interior angles, or supplementary alternate exterior angles, then the lines are parallel. False
8. If lines r, s, and t are in the same plane, but $r \parallel s$ and $s \parallel t$, then $r \parallel t$. True
9. If lines x, y, and z are not in the same plane, and $x \perp y$ and $y \perp z$, then $x \parallel z$. False

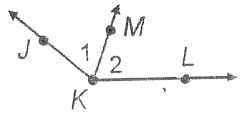
Part C: In problems 1-5, make a conclusion and justify it.

1. Given: R is the midpoint of $\overline{ST}$

   Conclusion: $\overline{SR} \cong \overline{RT}$

   Justification: Defn. of midpoint

2. Given: $\overrightarrow{KM}$ is the bisector of $\angle JKL$



   Conclusion: $\angle 1 \cong \angle 2$

   Justification: defn. of angle bisector

3. Given: $\angle 3$ and $\angle 4$ are vertical angles

   Conclusion: $\angle 3 \cong \angle 4$

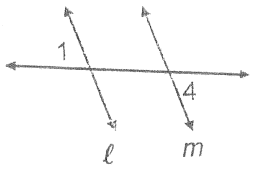
   Justification: vertical $\angle$ thm

4. Given: $\angle 5$ and $\angle 6$ are a linear pair

   Conclusion: $\angle 5$ and $\angle 6$ are supp.

   Justification: Linear Pair Thm.

5. Given: $\ell \parallel m$



   Conclusion: $\angle 1 \cong \angle 4$

   Justification: A.E.A. thm