Vocabulary List Geometry/Honors Geometry

Summer Preparedness Project ("Math Summer Reading")
Summer 2020 – know and be prepared to define/discuss the following terms

1. Geometry - branch of mathematics that deals with points, lines, planes and solids and examines their properties.
2. Point – has no size; length, width, or height. It is represented by a dot and named by a capital letter.
3. Line – set of points which has infinite length but no width or height. A line is named by a lower case letter or by any two points on the line.
4. Plane – set of points that has infinite length and width but no height. We name a plane with a capital 'funny font' letter.
5. Collinear points – points that lie on the same line.
6. Noncollinear points – points that do **not** lie on the same line.
7. Coplanar points – points that lie on the same plane.
8. Noncoplanar points – points that do **not** lie on the same plane.
9. Segment – part of a line that consists of two points called endpoints and all points between them.
10. Ray- is the part of a line that contains an endpoint and all points extending in the other direction.
11. Congruent segments – segments that have the same length.
12. Bisector of a segment – line, ray segment, or plane that divides a segment into two congruent segments.
13. Midpoint of a segment – a point that divides the segment into two congruent segments.
14. Acute angle – angle whose measure is between 0 degrees and 90 degrees.
15. Right angle – angle whose measure is 90 degrees.
16. Obtuse angle – angle whose measure is greater than 90 degrees but less than 180 degrees.
17. Straight angle – angle whose measure is 180 degrees.
18. Congruent angles – angles that have the same measure.
19. Angle bisector – ray that divides an angle into two congruent adjacent angles.
20. Triangle – the figure formed by three segments joining three noncollinear points. Each of the three points is a vertex of the triangle and the segments are the sides.
21. Acute triangle- triangle that has all acute angles.
22. Right triangle – triangle with a right angle.
23. Obtuse triangle – triangle with an obtuse angle.
24. Equiangular triangle – triangle with all angles congruent.
25. Scalene triangle – triangle with no sides congruent.
26. Isosceles triangle – triangle with at least two sides congruent.
27. Equilateral triangle – triangle with all sides congruent.
28. Adjacent angles – two coplanar angles with a common vertex and a common side between them
29. Vertical angles – the non-adjacent angles formed by two intersecting lines.
30. Complementary angles – two angles whose sum is 90 degrees.
31. Supplementary angles – two angles whose sum is 180 degrees.
32. Perpendicular lines – two lines that intersect to form right angles.
33. Parallel lines – two lines are parallel if they are coplanar and do not intersect.
34. Skew lines – are noncoplanar lines they will not intersect.
35. Polygon – union of 3 or more coplanar segments that meet only at endpoints such that at most two segments meet at one endpoint and each segment meets exactly two other segments.
36. Regular polygon – polygon which is equilateral and equiangular.
37. Congruent triangles – two triangles are congruent if corresponding sides are congruent and corresponding angles are congruent.
38. Median of a triangle – segment from the vertex of a triangle to the midpoint of the opposite side.
39. Altitude of a triangle – segment from the vertex of a triangle perpendicular to the line containing the opposite side.
40. Parallelogram – quadrilateral with both pairs of opposite sides parallel.

41. Rectangle – parallelogram with a right angle.
42. Rhombus – parallelogram with consecutive sides congruent.
43. Square – all sides congruent and all four right angles.
44. Trapezoid – quadrilateral with exactly one pair of opposite sides parallel.
45. Ratio – comparison of two numbers by division.
46. Proportion – equation that states two ratios are equal.
47. Pythagorean Theorem – in a right triangle, the sum of the squares of the legs is equal to the square of the hypotenuse
48. Circle – the set of points in a plane that are equidistant from a fixed point called the center.
49. Radius – segment whose endpoints are the center of the circle and a point on the circle.
50. Chord – segment that connects two points on the circle.
51. Diameter – chord that passes through the center of the circle.
52. Secant – line that intersects a circle in two points.
53. Tangent – line in the plane of the circle that intersects the circle in one point.
54. Concentric circles – two or more circles in the same plane with the same center.
55. Congruent circles – circles that have congruent radii.
56. Sphere – set of points in space a given distance from a given point called the center.
57. Arc – consists of two points and the continuous part of a circle between them.
58. Semi-circle – arc whose endpoints are the endpoints of a diameter.
59. Minor arc – arc whose measure is less than a semi-circle (180 degree).
60. Major arc – arc whose measure is greater than a semi-circle (180 degrees).
61. Central angle of a circle – angle whose vertex is the center of the circle and whose rays are radii of the circle.
62. Congruent arcs – arcs with equal measure in the same circle or in congruent circles.
63. Inscribed angles – angle whose vertex is on the circle and whose sides are chords of the circle.
64. Bases – congruent polygons lying in parallel planes.
65. Altitude – segment joining the two base planes and perpendicular to both.
66. Lateral faces – faces of a prism that are not its bases.
67. Lateral edges – intersection of adjacent lateral faces form lateral edges.
68. Lateral area – sum of the area of its lateral faces.
69. Surface area – sum of the area of all its faces.
70. Volume – number of cubic units contained in a solid.
71. Right Prism – is a prism whose lateral faces are rectangles.
72. Oblique prism – is a prism whose lateral faces are parallelograms.
73. Cube – is a prism where all sides are squares.
74. Triangular prism – is a prism whose parallel faces (the bases) are congruent triangles.
75. Cylinder – has two congruent circular bases in parallel planes.
76. Cone – has a vertex and a circular base.
77. Line of symmetry – divides a figure into two congruent halves that reflect each other.
78. Perimeter – of a polygon is the distance around the polygon.
79. Area – of any surface is the number of square units required to cover the surface.
80. Volume – of a 3-dimensional figure is the number of cubic units contained in the solid.
81. Circumference – the distance around a circle.
82. Conditional statement – a statement that can be written in an if-then form.
83. Hypothesis – in a conditional statement the statement that immediately follows the word 'if'.
84. Conclusion – in a conditional statement the statement that immediately follows the word 'then'.
85. Converse – the statement formed by exchanging the hypothesis and the conclusion of a conditional statement.
86. Inverse – the statement formed by negating both the hypothesis and the conclusion of a conditional statement.
87. Contrapositive – the statement formed by negating both the hypothesis and conclusion of the converse of a conditional statement.
88. Bi-conditional – the conjunction of a conditional statement and its converse.

89. Deductive reasoning – a system of reasoning that uses facts, rules, definitions, or properties to reach logical conclusions.

90. Inductive reasoning – reasoning that uses a number of specific examples to arrive at a plausible prediction.

91. Proof – a logical argument in which each statement you make is supported by a statement that is accepted as true.

92. Postulate- a statement that describes a fundamental relationship between basic terms of geometry. Postulates are accepted as true without proof.

93. Theorems – a statement or conjecture that can be proven true by given, definitions, postulates, or already proven theorems.

94. Two-column proof – a formal proof that contains statements and reasons organized in two columns.

95. Paragraph proof – an informal proof written in the form of a paragraph that explains why a conjecture for a given situation is true.

96. Flow proof – a proof that organizes statements in logical order, starting with given statements. Each statement is written in a box with the reason verifying the statement written below the box.

97. Conjecture – an educated guess based on known information.

98. Sine – for an acute angle of a right triangle, the ratio of the measure of the leg opposite the acute angle to the measure of the hypotenuse.

99. Cosine – for an acute angle of a right triangle, the ratio of the measure of the leg adjacent to the acute angle to the measure of the hypotenuse.

100. Tangent – for an acute angle of a right triangle, the ratio of the measure of the leg opposite the acute angle to the measure of the leg adjacent to the acute angle.

101. Space – set of all points.

ACADEMIC VOCABULARY

1. Compare and contrast
2. Justify
3. Argument
4. Interchange
5. Negate
6. Format
7. Confirm
8. Criterion
9. Coincide
10. Triangulation
11. Conjecture
12. Replicate
13. Cross section
14. Primates (Probability and Statistics)
15. Omit
16. Concurrent
17. Consecutive
18. Indistinguishable

Geometric Formulas

$A = \frac{1}{2}bh$

$A = \frac{1}{2}h(b_1 + b_2)$

$V = Bh$
$L.A. = hp$
$S.A. = L.A. + 2B$

$V = \frac{1}{3}Bh$
$L.A. = \frac{1}{2}lp$
$S.A. = L.A. + B$

$A = lw$
$p = 2(l + w)$

$A = \pi r^2$
$C = 2\pi r$

$V = \pi r^2 h$
$L.A. = 2\pi rh$
$S.A. = 2\pi r(h + r)$

$V = \frac{4}{3}\pi r^3$
$S.A. = 4\pi r^2$

$A = bh$

$V = lwh$
$S.A. = 2lw + 2lh + 2wh$

$V = \frac{1}{3}\pi r^2 h$
$L.A. = \pi rl$
$S.A. = \pi r(l + r)$

$c^2 = a^2 + b^2$
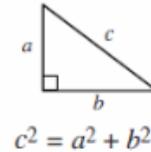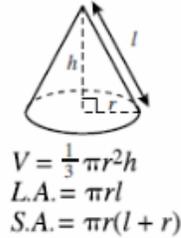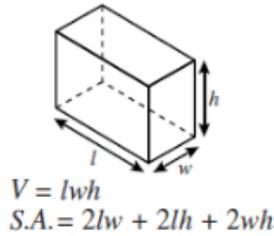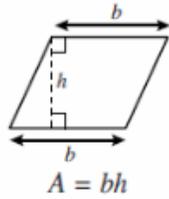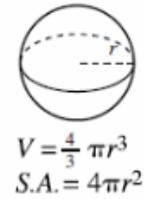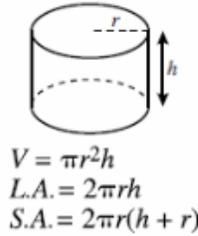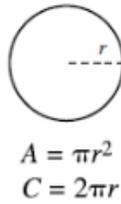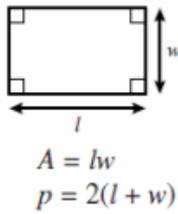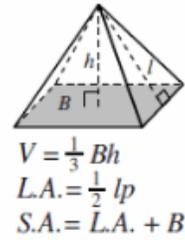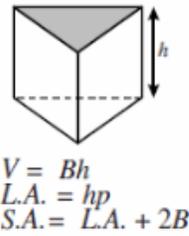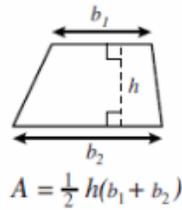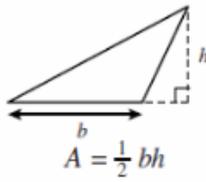
Geometric Symbols

Example	Meaning
$\angle A$	angle A
$m\angle A$	measure of angle A
$\overline{AB}$	line segment AB
AB	measure of line segment AB
$\overleftrightarrow{AB}$	line AB
$\triangle ABC$	triangle ABC
$\square ABCD$	rectangle $ABCD$
$\diagdown ABCD$	parallelogram $ABCD$

Example	Meaning
$\overrightarrow{AB}$	vector AB
	right angle
$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$	Line AB is parallel to line CD.
$\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$	Line AB is perpendicular to line CD.
$\angle A \cong \angle B$	Angle A is congruent to angle B.
$\triangle A \sim \triangle B$	Triangle A is similar to triangle B.
	Similarly marked segments are congruent.
	Similarly marked angles are congruent.

Abbreviations

Volume	V
Lateral Area	$L.A.$
Total Surface Area	$S.A.$
Area of Base	B

Pi

$\pi \approx 3.14$

$\pi \approx \frac{22}{7}$