**Math Reviewer**

**Polygons**

* Comes from the Greek word “polygonon,” meaning **poly = many**, and **gon = angles**.
* Cannot have curves or gaps.
* More than 3 sides.

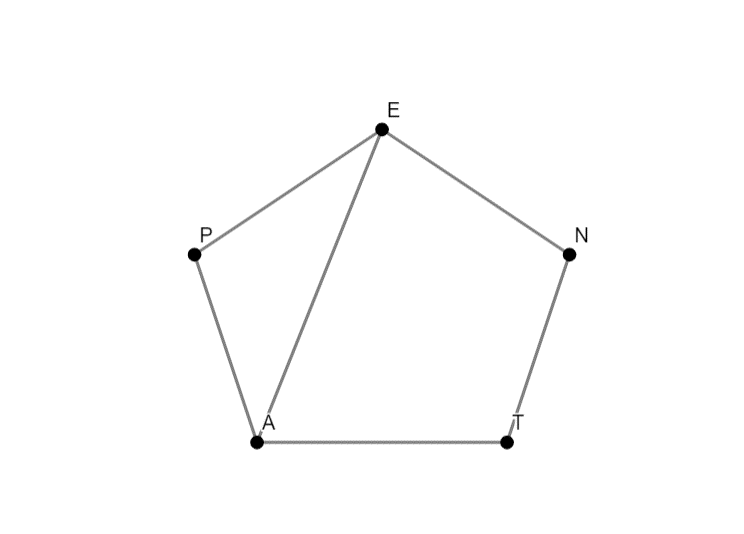
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| **Name of Polygon** | **Number of Sides** | **Sum of Interior Angles** |
| Triangle | 3 | 180° |
| Quadrilateral | 4 | 360° |
| Pentagon | 5 | 540° |
| Hexagon | 6 | 720° |
| Heptagon | 7 | 900° |
| Octagon | 8 | 1080° |
| Nonagon | 9 | 1260° |
| Decagon | 10 | 1440° |
| Undecagon | 11 | 1620° |
| Dodecagon | 12 | 1800° |

**Polygon:**

* Plane figure formed by three or more segments.

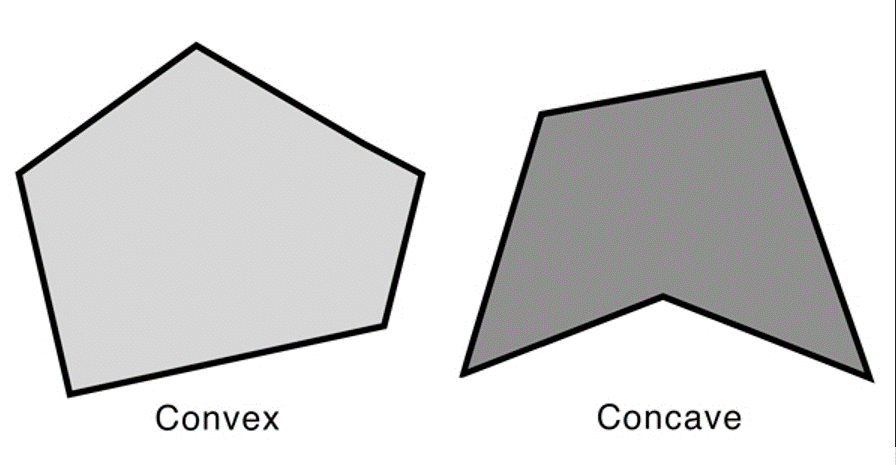
**Angles and Sides of Polygon**

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| **Name** | **Description** | **Ex.** |
| **Consecutive Sides** | Two sides of a polygon that share a common endpoint. | and |
| **Consecutive Angles** | Two angles whose vertices are endpoints of the same side. |  |
| **Included Side (of Two Angles)** | The common side of two consecutive angles. | ∠P and ∠A. |
| **Included Angle (of Two Sides)** | The angle containing the common vertex of two consecutive sides. |  |
| **Diagonal (of a Polygon)** | A segment joining any two nonconsecutive vertices. |  |

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**Polygonal Region**

* **Polygonal Region** – A polygon and its interior.
* **Interior** – A polygon completely enclosed a region of the plane.
* **Concave** – Polygonal regions that bend inward.
* **Concave Polygon** – A polygon that determines a concave region.
* **Convex** – Polygonal region that do not bend inward
* **Convex Polygon** – A polygon that determines a convex region.
* **Regular Polygons** – A polygon with congruent (equal) sides and angles.
* Circles are concaves.
* Any curved side are concaves.



**Quadrilaterals**

* The union of four segments.

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| **Name** | **Description** | **Shape** |
| **Parallelogram** | A quadrilateral with both pairs of opposite sides is parallel. Almost a rectangle but slanted. |  |
| **Rhombus** | A parallelogram with four congruent sides. Almost a square but slanted. |  |
| **Rectangle** | A parallelogram with four right (90°) angles. |  |
| **Square** | A parallelogram with four right (90°) angles. |  |
| **Kite** | A Quadrilateral with two pairs of adjacent congruent and no opposite sides congruent. |  |
| **Trapezoid** | A quadrilateral with exactly one pair of parallel sides. |  |

**Classifications of Triangles**

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| **Name** | **Shape** |
| **Scalene** |  |
| **Equilateral** |  |
| **Obtuse** |  |
| **Isosceles (Congruent or Equal in Measure)** |  |
| **Acute** |  |
| **Right** |  |

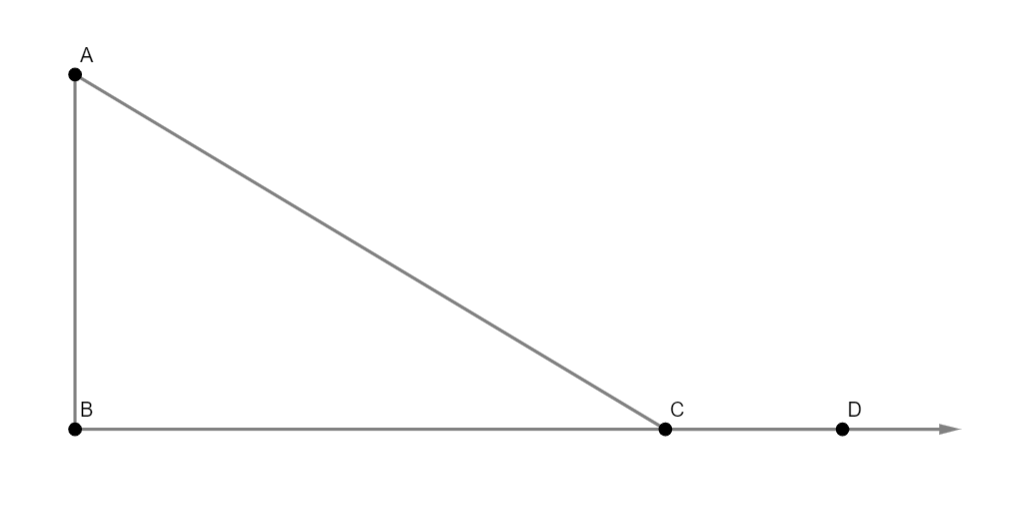
**Measuring Angles in a Triangle**

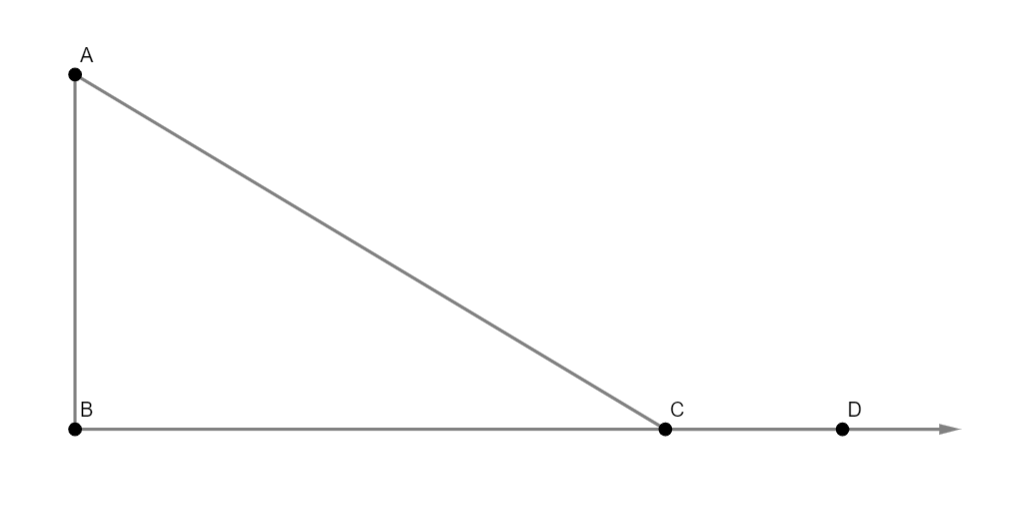
* **Property 1** - The sum of the degree measures of the interior angle of a triangle is 180°
* **Property 2** –If two angles of one triangle are congruent (equal in measure) to two angles of another triangle, then the third angles in each triangle are also congruent.

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| **Examples:** |  |
| Given:  m∠B = 35  m∠C = 90  m∠A (Answer) = 55°  Solution:  35 + 95 = 125  125 – 180 = 55° | Given:  m∠H = 40  m∠F = 90  m∠J (Answer) = 50°  Solution:  40 + 90 = 130  180 – 130 = 50° |

* **Property 3** – The measure of an exterior angle of a triangle is equal to the sum of the measures of its two remote interior angles.

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| **Examples:** |  |
| Given:  m∠A = 145  m∠B = 35  m∠D (Answer) = 180°  Solution:  145 + 35 = 180**°** | Given:  m∠A = 95  m∠D = 160  m∠B (Answer) = 45°  Solution:  160 - 95 = 45**°** |

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* **Adjacent Interior Angle** –
* **Exterior Angle** - ∠D
* **Remote Interior Angle** – An angle that forms a linear pair with an angle of the triangle.

∠A and ∠B

* **Exterior Pair** – An angle that forms a linear pair with an angle of the triangle.

**Angles in a Polygon**

**Property 1**

* The same of the measures of a convex quadrilateral is 360°.

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| **Examples:** | Graphic: |
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**Property 2**

* The sum of the measures of the angles of a convex polygon n side.
* n = Number of sides
* **Formula**

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| **Examples:** |  |
| Given:  Triangle = 3  Solution: | Given:  Quadrilateral = 4  Solution: |

**Property 3**

* The exterior angles of a convex measures up to 360°

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| **Examples:** |  |
| **Given:** | **Solution:** |
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**Corollary**

* **Formula**

**Circles and Related Terms**

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| **Name** | **Description** | **Shape** |
| **Circle** | The set of all points in a plane from a given point known as the center of the circle. |  |
| **Radius** | A segment whose endpoints are the center a point on the circle. |  |
| **Chord** | A segment whose endpoints lie on a circle |  |
| **Diameter** | Longest chord in a circle and twice the length of a radius. |  |
| **Secant** | A line intersecting the circle at two points. |  |
| **Tangent** | A line intersecting the circle at one point. Point of intersection is called “Point of Tangency.” |  |
| **Sector** | The part of a circle enclosed by two radii of a circle and arc. |  |

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| **Arc** |  |
| **Semicircle** – Half of a circle. |  |
| **Segment** |  |
| **Inscribed Angle** – Vertex lies on the circle. |  |
| **Central Angle** – Vertex is on the center. |  |