

**Mathematics Department**

**Pebblebrook high school | GSE Geometry**

**EOC/Final Exam Review**

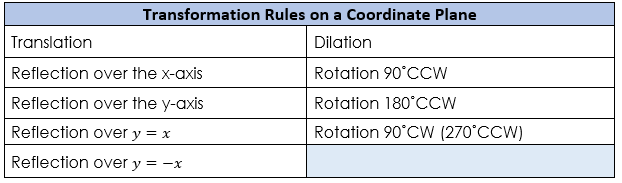
GSE Geometry





**Unit 1: Transformations in the Coordinate Plane**

|  |  |  |
| --- | --- | --- |
| ***Term*** | ***Illustration*** | ***Definition*** |
|  |  | A part of a line; it consists of two points and all points between them |
|  |  | Formed by two rays with a common endpoint |
|  |  | The set of all points in a plane that are equidistant from a given point called the center; the fixed distance is the radius |
|  |  | Lines in the same plane that do not intersect |
|  |  | Two lines that intersect to form right angles |

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a coordinate plane can be described as a function that maps \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ points (inputs) to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ points (outputs.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all **preserve distance** and **angle measure** because, for each of those transformations, the pre-image and image are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Some types of transformations **do not** preserve distance and angle measure because the pre-image and image are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



**Unit 2: Similarity, Congruence, and Proofs**

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a transformation that changes the size of a figure, but not the shape, based on a ratio given by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with respect to a fixed point called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* When the scale factor is greater than 1, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the figure is made larger. When the scale factor is between 0 and 1, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the figure is made smaller. When the scale factor is 1, the figure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* When a figure is transformed under a dilation, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the pre-image and the image have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the pre-image and the image are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* So when a figure is under a dilation transformation, the pre-image and the image are \_\_\_\_\_\_\_\_\_\_\_\_\_.
* When proving that two triangles are similar, it is sufficient to show that two pairs of corresponding angles of the triangles are congruent. This is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a series of statements and reasons often displayed in a chart that works from given information, can be based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or can be based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ also uses a series of statements and reasons that work from given information to the statement that needs to be proven, but the information is presented as running text in paragraph form.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a transformation of points in space consisting of a sequence of one or more translations, reflections, and/or rotations (in any order). This transformation leaves the \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ of the original figure unchanged.
* Two triangles are congruent if and only if their corresponding \_\_\_\_\_\_\_\_\_\_ and corresponding \_\_\_\_\_\_\_ are congruent. This is sometimes referred to as \_\_\_\_\_\_\_\_\_\_\_\_\_, which means **C**orresponding **P**arts of **C**ongruent **T**riangles are **C**ongruent.
* You can use SSS, SAS, ASA, and AAS to show two triangles are congruent.

|  |  |
| --- | --- |
| **Triangle Congruence: \_\_\_\_\_\_\_**  **Congruence Statement: \_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |
| **Triangle Congruence: \_\_\_\_\_\_\_**  **Congruence Statement: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |
| **Triangle Congruence:\_\_\_\_\_\_\_\_**  **Congruence Statement: \_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |
| **Triangle Congruence: \_\_\_\_\_\_\_**  **Congruence Statement: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

|  |  |
| --- | --- |
| Some important KEY IDEAS about LINES and ANGLES | |
| * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | * Vertical Angles are Congruent * If two parallel lines are cut by a transversal, then alternate interior angles formed by the transversal are congruent * If two parallel lines are cut by a transversal, then corresponding angles formed by the transversal are congruent * Points on a perpendicular bisector of a line segment are equidistant from both of the segment’s endpoints |
| Some important KEY IDEAS about TRIANGLES | |
| * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | * The sum of the measures of angles of a triangle is 180˚ * If two sides of a triangle are congruent, then the angles opposite those sides are also congruent * If a segment joins the midpoints of two sides of a triangle, then the segment is parallel to the third side and half its length. |
| Some important KEY IDEAS about PARALLELOGRAMS | |
| * Opposite sides are congruent and opposite angles are congruent * The diagonals of a parallelogram bisect each other * If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram * A rectangle is a parallelogram with congruent diagonals | |

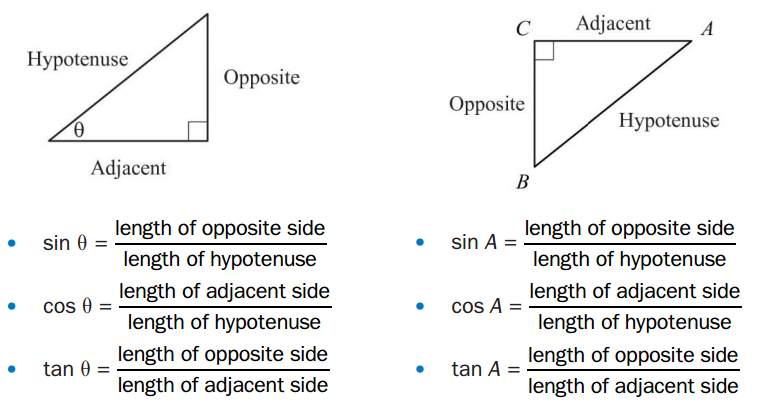
|  |  |  |
| --- | --- | --- |
| **Geometric Construction** | **Given Information** | **Construction** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of Construction** | **Example** | **Point of Concurrency** | **Example** |
|  |  | Circumcenter |  |
|  |  | Incenter |  |
|  |  | Centroid |  |
|  |  | Orthocenter |  |

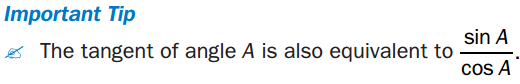


**Unit 3: Right Triangle Trigonometry**

* The trigonometric ratios \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_ are defined as ratios of the lengths of the sides in a right triangle with a given acute angle measure.



* The two acute angles of any right triangle are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As a result, if angles P and Q are complementary, and
* When solving problems with right triangles, you can use both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. There may be more than one way to solve the problem, so analyze the given information to help decide which method is most efficient.





**Unit 4: Circles and Volume**

|  |  |
| --- | --- |
| * A \_\_\_\_\_\_\_\_\_\_\_\_\_ is the set of points in a plane equidistant from a given point, which is the center of the circle. All circles are \_\_\_\_\_\_\_\_\_\_. * A \_\_\_\_\_\_\_\_\_ is a line segment from the center of a circle to any point on the circle. |  |
| * A \_\_\_\_\_\_\_\_\_\_ is a line segment whose endpoints are on a circle. |  |
| * A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a chord that passes through the center of a cirlce. The word diameter is also used to described the length. |  |
| * A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a line that is in the plane of a circle and intersects the cirle at exactly two points. Every chord lies on a secant line. |  |
| * A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a line that is in the plane of a circle and intersects the circle at only one point, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |  |
| * A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an angle whose vertex is at the center of a circle and whose sides are radii of the circle. The measure of a central angle of a circle is \_\_\_\_\_\_\_\_\_\_\_ to the measure of the intercepted arc. |  |
| * An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an angle whose vertex is on a circle and whose sides are chords of the circles. The measure of an angle inscribed in a circle is \_\_\_\_\_\_\_\_\_\_ the measure of the intercepted arc. |  |

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the distance around a circle. The formula is \_\_\_\_\_\_\_\_\_\_\_, where r is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the radius of the circle. Π is the ratio of circumference to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of any circle.
* An \_\_\_\_\_\_\_\_ is a part of the circumference of a circle. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a measure less than 180˚. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an arc that measures exactly 180˚. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a measure greater than 180˚.

|  |  |  |
| --- | --- | --- |
| If a line is tangent to a circle, the line is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the radius drawn to the point of tangency. | | Tangent segments drawn from the same point are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angle is an angled formed by two rays that are each tangent to a circle. The rays are perpendicular to the radii. | | When an inscribed angle intercepts a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the inscribed angle has measure of \_\_\_\_\_\_\_\_. |
| The measure of an angle formed by a tangent and a chord with its vertex on the circle is \_\_\_\_\_\_\_\_\_\_\_ the measure of the intercepted arc. | | When two chords intersect inside a circle, two pairs of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are formed. The measure of any one of the angles is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the measures of the arcs. |
| Angles outside a circle can be formed by the intersection of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. For all three situations the measure of the angle is \_\_\_\_\_\_\_\_\_ the difference of the measure of the larger intercepted arc and the measure of the smaller intercepted arc. | |
|  | |

|  |  |
| --- | --- |
| When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ segments or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ segment intersect outside a circle, part of each secant segment is a segment formed outside the circle. The product of the length of each segment is equal to the product of the lengths of the other segment. | When two chords intersect inside a circle, the \_\_\_\_\_\_\_ of the lengths of the segments of one chord is equal to the product of the lengths of the segments of the other chord |
|  | |

|  |  |
| --- | --- |
| An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a polygon whose vertices all lie on a circle. This diagram shows a triangle, a quadrilateral and a pentagon each inscribed in a circle. | |
| In a quadrilateral inscribed in a circle, the opposite angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | |
| When a triangle is inscribed in a circle, the center of the circle is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the triangle. It is equidistant from the vertices of the triangles | An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a circle enclosed in a polygon, where every side of the polygon is tangent to the circle. When a circle is inscribed in a triangle, the center of the circle is the \_\_\_\_\_\_\_\_\_ |

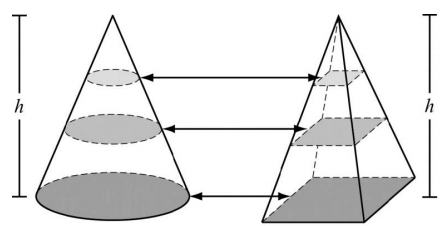
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a measure of the amount of space a circle covers. The formula \_\_\_\_\_\_\_\_\_\_\_\_ is where r is the length of the radius of the circle.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Is a portion of the circumference of a circle |  |  |
|  | Is the region bounded by two radii of a circle and the resulting arc between them |  |  |

* To find the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_divide the number of degrees in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the arc by 360, and then multiply that amount by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the circle.
* To find the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dive the number of degrees in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the arc by 360, and then multiply that amount by the \_\_\_\_\_\_\_\_\_\_\_ of the circle.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a figure is a measure of how much space it takes up. It is a measure of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  | Where r is the radius and h is the height    Where B is the area of the base and h is the height |  |
|  | Where r is the radius and h is the height    Where B is the area of the base and h is the height |  |
|  | Where r is the radius |  |

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ states that if two solids are between \_\_\_\_\_\_\_\_\_\_\_\_ and all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at equal distances from their bases have equal \_\_\_\_\_\_\_\_\_. The solids have equal \_\_\_\_\_\_\_\_\_\_.



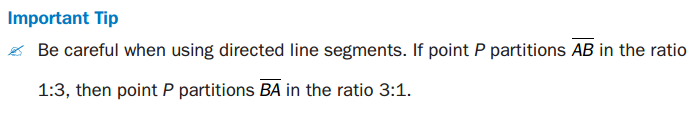
For example, the cone and pyramid above have the same height and the cross sections have the same area, so they have equal volumes.



**Unit 5: Geometric and Algebraic Connections**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be applied to describe real-life objects with geometric shapes.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the mass of an object by its volume.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be determined by calculating the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the number of people in an area and the area itself.
* Apply constraints to maximize or minimize the cost of a cardboard box used to package a product that represents a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Apply \_\_\_\_\_\_\_\_\_\_\_\_\_\_ relationships of cylinders, pyramids, cones, and spheres.
* A \_\_\_\_\_\_\_\_\_\_\_\_ is the set of points in a plane equidistant from a given point, or center, or the circle.
* The standard form of the equation of a circle is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where (h, k) is the \_\_\_\_\_\_\_\_\_\_\_ of the circle and r is the \_\_\_\_\_\_\_\_\_\_ of the circle.
* Given the equation of a circle, you can verify whether a point lies on the circle by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the coordinates of the point into the equation. If the resulting equation is \_\_\_\_\_\_\_, then the point lies on the figure. If the resulting equation is \_\_\_\_\_\_\_\_\_\_\_\_\_, then the point does not lie on the figure.
* Given the \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ of a circle, you can verify whether a point lies on the circle by determining whether the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the given point and the center is equation to the \_\_\_\_\_\_\_\_\_\_\_.
* To prove properties about special parallelograms on a coordinate plane, you can use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, distance, and \_\_\_\_\_\_\_\_\_\_\_\_\_ formulas.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to find the coordinates of a point which partitions a directed line segment AB at the ratio of a:b.





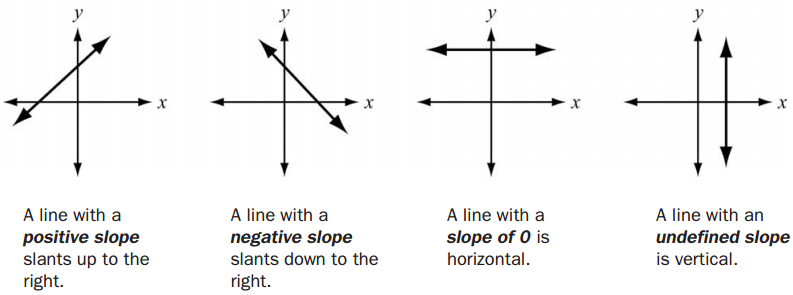
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to find the coordinates of the midpoint.



* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to fine the length.



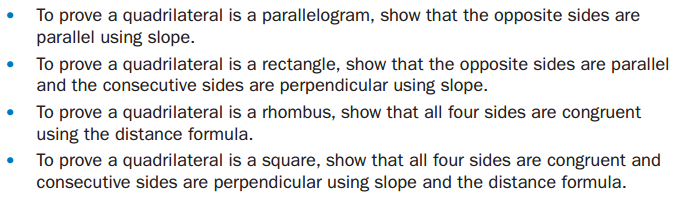
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to find the slope of a line or line segment, given any two points. Slopes can be \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_.

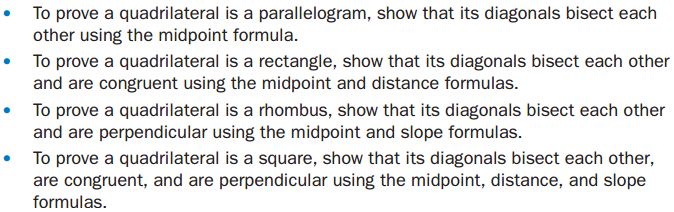


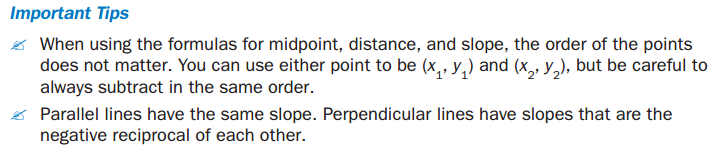
To prove properties about special parallelograms on a coordinate plane, you can use the midpoint, distance, and slope formulas:

|  |  |  |
| --- | --- | --- |
|  |  |  |

**You can use properties of quadrilateral to help prove theorems**

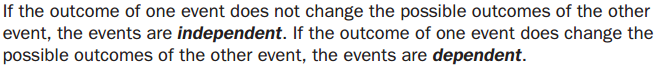
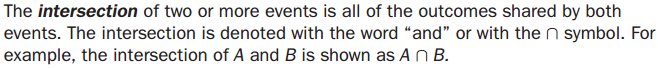
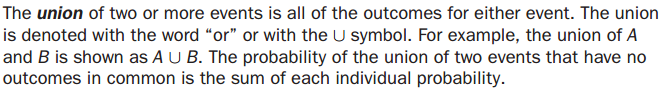
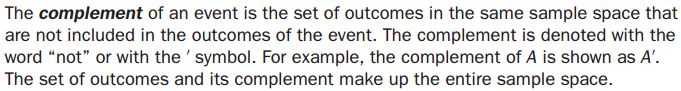
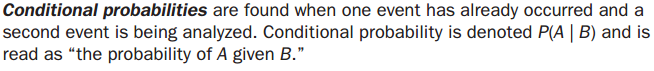




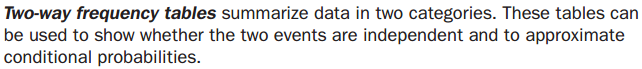
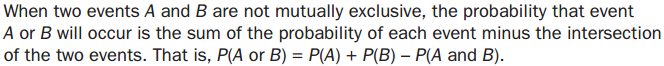




**Unit 6: Applications of Probability**

* 
* 
* 
* 
* 
* 



* 
* 
* 
* 
* 
* 
* 