|  |  |  |  |
| --- | --- | --- | --- |
| **GSE Geometry Milestone Review** | | Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ S: \_\_\_\_ | |
| **Unit 1 - Transformations** | | | |
| **Key Concepts**  **Transformation:** The mapping, or movement, of all points of a figure in a plane according to a common operation, such as translation, reflection or rotation.  **Translation:** A transformation that slides each point of a figure the same distance in the same direction.  **Angle of Rotation:** The amount of rotation (in degrees) of a figure about a fixed point such as the origin.  **Rotation:** A transformation that turns a figure about a fixed point through a given angle and a given direction, such as 90° which is understood to be counter clockwise.  **Reflection Line (or line of reflection):** A line that acts as a mirror so that corresponding points are the same distance from the mirror. x = 0 is a vertical line of reflection, while y = 0 is a horizontal line of reflection  **Isometry:** A distance preserving map of a geometric figure to another location using a reflection, rotation or translation.  **Even Symmetry** means refect about rule. **Odd Symmetry** means 180 rotation symmetry or rule. | | | |
|  | | | 9) What is the minimum degrees of rotation to map the regular hexagon onto itself?    10) Reflect about the line . |
| 11) Is this function even, odd or neither?  C:\Program Files\TI Education\TI InterActive!\TIIimagefile5435.gifC:\Program Files\TI Education\TI InterActive!\TIIimagefile5435.gifC:\Program Files\TI Education\TI InterActive!\TIIimagefile5435.gif | 12) Are these equations even, odd or neither? | | 13) A function is known to have odd symmetry. If its graph contains the following points in addition to many more, state at least two points that would also have to lie along the graph. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit 2 – Triangle Similarity & Congruence** | | | |
| **Key Concepts**  1) Vertical angles, alternate interior angles, alternate exterior angles and corresponding angles are congruent.  2) Shared or reflexive sides and angles are congruent.  3) Triangle Similarity: AA~, SSS~, and SAS~  4) A line drawn inside a triangle that is parallel to a 3rd side creates proportionality amongst corresponding parts.  5) A midsegment is \_\_\_\_\_ as long as the 3rd side that it’s parallel to and \_\_\_\_\_\_\_\_\_\_\_\_\_ the sides it touches.  6) Triangle Congruency: SSS, SAS, ASA, AAS and HL. ASS or SSA cannot be used to prove congruency.  7) Constructions: look over your practice examples. Remember the key concept is measuring more than ½ way to make secondary arc strikes in some of the constructions. | | | |
| 1) | | 2) Are the two triangles similar? If so, explain how you know based on angle types.    3) *Given:*  *Prove:* | |
| 4) Find ALL missing angles. | | 5) What is the height between the tops of the two ladders? | |
| *Write the triangle congruency statement & by theorem, using* ***SSS, SAS, ASA, AAS, HL*** *or write “Not possible” if not congruent.* | | | |
| 6) \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_ | 7) \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_ | | 8) \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_ |
|  |  | |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Unit 3 - Right Triangle Trigonometry** | | | | | | |
| **Key Concepts**  **Finding missing sides use Soh Cah Toa** | | | | | | |
|  | | | |  | | |
| ***Using the diagram, Find each trig ratio.***  *Sin A = \_\_\_\_\_ Sin C = \_\_\_\_\_*  *Cos A = \_\_\_\_\_ Cos C = \_\_\_\_\_*  *Tan A = \_\_\_\_\_ Tan C = \_\_\_\_\_*  *Are Sin A & Cos B the same?* | | |  | | | |
| ***Solve for x. (Multistep, drop an altitude)*** | | | ***Solve for total area by finding the area of each smaller △.*** | | | |
| 1) | 2) | | 3) | | | 4) |
| ***Find the missing angle (inverse trig).*** | | | | | | |
| 5) | | 6) | | | 7) | |
| 8) What is the length of the diagonal of a square with side lengths ? | | | 9) The length of the diagonal of a square is 24. What is the length of each side? | | | |
| 11) The area of a square is 25 cm2. What is the product of the lengths of the diagonals of the square? | | | 12) What is the length of the altitude of an equilateral triangle with side lengths ? | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit 4 – Circles, Angles & Segments** | | | |
| **Key Concepts**  1) A central angle’s relationship to its intercepted arc is that they are \_\_\_\_\_\_\_\_\_\_\_. 2) An intercepted arc’s relationship to its inscribed angle is that it is \_\_\_\_\_ times the measure of the angle. 3) A diameter with endpoints of an inscribed angle creates a right \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with a \_\_\_\_ degree angle opposite the diameter. 4) Arc Length is based on the fraction of the arc measure over 360 x \_\_\_\_\_\_. 5) Sector Area is based on the fraction of the arc measure over 360 x \_\_\_\_\_\_. 6) When finding an exterior angle of secants and, or tangents, take ½ of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the arcs. 7) When finding an interior angle of secants and or chords, take ½ of the \_\_\_\_\_\_\_\_ of the arcs. 8) When finding missing segments of secants or chords inside a circle, multiple the \_\_\_\_\_\_\_\_\_\_\_\_ of the segments. 9) When finding missing segments of secants and, or tangents, multiply the \_\_\_\_\_\_\_\_\_\_\_\_\_ (whole). 10) Tangents that intersect outside a circle are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. 11) Opposite angles of quadrilaterals inscribed inside a circle are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. 12) A Point of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ creates a right angle, making the tangent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the radius. When solving problems, look for a 2nd radius being part of the length of the hypotenuse. 13) A radian is an angle measure such that the length of the radius equals the arc \_\_\_\_\_\_\_\_\_\_\_\_\_. 14) Cavalieri’s Principle says that the volume of two solids is equal if two parallel cross sections have the same \_\_\_\_\_\_\_\_. | | | |
|  |  |  |  |
|  |  |  |  |
|  |  |  | Find the arc length & sector area. |
| Find volume given diameter. | Find the volume. | Find the volume. | An Apple pie has a diameter of 9 in. The pie is cut into 6 equal pieces. What is the area of each piece of the pie? |
| Find the volume. | Find the surface area. | Find the volume. | Based on Cavalieri’s Principle, can a rectangular prism have the same volume as a rectangular pyramid? |

|  |  |
| --- | --- |
| **Unit 5 – Algebraic Connections with Geometry** | |
| **Key Concepts**  Distance: , and you can always draw a right triangle on a graph to find  Midpoint:  Point Partitioning a Line Segment:  Try to rotate a polygon like a triangle or parallelogram so an altitude is perpendicular to a side or base.  Circle Standard Form Equation: **, where the number on the right is ALWAYS squared.** | |
| 1) Find Point Z that partitions the directed line segment XY in a ratio of . Graph. | 2) Partition the long segment from point Graph. |
| Put into standard form, find center & radius (simplest form). | Now graph the circle. |
| Find the perimeter and area. | Find the perimeter and area. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit 6 - Probability** | | | |
| **Key Concepts**  shade the set  , shade the set , shade the set  shade the set, shade the set  Addition Rule (aka mutually exclusive):  Multiplication Rule for Independent Events:  **Conditional Probability: or**  Independent Events do not affect one another while Dependent Events do and means non-replacement. | | | |
| 1) Find the probability that a randomly selected student will be a junior, given that the student owns a car.  2) Find the probability that a randomly selected student will own a car, given that the student is a senior. | |  | |
| 3) For two events B and C, it is known that and . Find P(B). | 4) For two events X and Y, it is known that and Find . | | |
| 4) A sock drawer contains 5 pairs of each color socks: white, green and blue. What is the probability of randomly selecting a pair of blue socks, replacing it, and then randomly selecting a pair of white socks? | 5) Randy has 8 pennies, 3 nickels, and 5 dimes in his pocket. If he randomly chooses 2 coins, what is the probability that they are both pennies if he doesn’t replace the first one? | | |
| 6) Using the letters in the state MISSISSIPPI. Find the probability of picking an **S** and then a **P** without replacement. | 7) Using determine if the following events are independent.  . | | |
| A guidance counselor is planning schedules for 200 students. 152 want to take Spanish and 49 want to take Latin. 19 say they want to take both. Display this information on the Venn Diagram.  8) What’s the probability that a student studies at least one subject? P(SL)  9) What’s the probability that a student studies exactly one subject?  10) What’s the probability that a student studies neither subject? P(SL)’  11) What’s the probability that a student studied Spanish if it is known that he, she studies Latin? | | |  |
| 12) If you roll two die, find:  P(Odd number or a number greater than 8) | 13) If you roll two die, find:  P(Doubles or a sum of 6) | | |