**Unit 3 Review Guide**

**Learning Target #1: Transformations**

*A. Given a rule, perform the transformation on a graph or set of points.*

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| *a.* | *b.* | *c.* |

*B. Given a transformed graph or set of points, determine the rule.*

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| *a.* | *b.* | *c.* |

*C. Perform several transformations on a figure or set of points*

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| *a. Perform the following combined transformations:* | *b. Perform the following combined transformations:* |

*D. Determine an angle of rotation of a given figure*

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| *a.* | *b.* | *c.* | *d.* |

**Learning Target #2: Distance and Lines in a Coordinate Plane**

*E. Use the distance formula to calculate the distance between two points.*

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| *a.* Find the distance between the given points: A(-3, 1) & B (-5, -8) | *b.* Find the length of the segment that has the endpoints (0, 0) and (3, 4). |

*F. Use the midpoint formula to calculate the midpoint or an endpoint when given the midpoint.*

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| *a.* Find the midpoint of the segment that has the endpoints (-6, 9) and (2, 3). | *b.* Find the coordinates of the other endpoint of a segment with an endpoint of A(-2, 0) and a midpoint M(3, -1). |

*G. Find the area and perimeter of a figure in the coordinate plane*

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| *a. Find the perimeter of the following figure:* | *b. Find the area of the following figure:* |
| *c. Find the area and perimeter of the following figure:* | |

*H. Partition a line segment on the coordinate plane*

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| *a.* Find the coordinate of point P that lies along the directed line segment from A(1, 5) to B(6, 10) and partitions the segment in the ratio of 3 to 2. | *b.* Find the coordinates of the point P that lies along the directed segment from A(1, 0) to B(7, 3) and partitions the segment in the ratio of 2:1. |

*I. Determine if a pair of lines are parallel, perpendicular, or neither. Explain why.*

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| *a.* | *b.* |

*J. Given the slope and a point on a line, determine the equation of a line parallel or perpendicular to the original line*

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| a. Write an equation of a line that is parallel to y = 2x - 8 and passes through the point (3,10). | b. Write an equation of a line that is perpendicular to  y = 1/3x – 1 and passes through the point (6, 3). |

**Learning Target #3: Equations of Circles**

*K. Determine the center and radius of a circle from an equation or graph.*

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| *a.* | *b.* |

*L. Write the equation of a circle when given the graph, center and radius, or two points on the circle.*

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| *a.* | *b.* Write the equation of a circle centered at the origin with a radius of. |
| *c.* Write the equation of a circle given a center at (-6, 1) and a radius of 4. | *d.* Write the equation of a circle given a center at (-2, 1) and a point of (3,2). |

*M. Convert the equation of a circle from standard to general form*

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| *a.* (x + 4)2 + (y – 2)2 = 9 | b. Center at (-5, 3) and a radius of 3 |

*N. Convert the equation of a circle from general to standard form*

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| a. x2 + y2 + 8x – 2y – 64 = 0    Center: \_\_\_\_\_\_\_\_\_ Radius: \_\_\_\_\_\_\_\_\_ | b. 2x2 + 2y2 + 8x – 4y – 72 = 0  Center: \_\_\_\_\_\_\_\_\_ Radius: \_\_\_\_\_\_\_\_\_ |

*O. Determine if a point is on, inside, and outside the circle*

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| *a.* Circle C has a center of (3, 4) and a radius of 5. Where does the point (0, 9) lie on circle C? Show your evidence (work). | *b.* Circle C has a center of (3, 2) and a radius of 3. Where does the point (5, 4) lie on circle C? |

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| **Rules/Formulas I Need to Memorize:**  **Translations:**  **Rotations:** 90 CW 180 90CCW  **Reflections:** Over x-axis Over y-axis  Over y = x Over y = -x  **Midpoint:**  **General Form of a Circle:**  **Slope of Parallel Lines:**  **Slope of Perpendicular Lines:** | **Rules/Formulas that Will Be Given to Me:**  **Linear Equation Forms:**    **Distance:**    **Partitioning:**    **Area Formulas:**    **Pythagorean Theorem:**    **Standard Form of a Circle:** |