Honors Algebra 2 **Name_____**

WS: Distance / Midpoint **Hour _____**

Formulas:

Distance between two points = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Part 1: For 1 – 12, please: **a) Find the distance between the given points A & B**
b) Find the coordinates of the midpoint of segment AB

1. A (5, 2) B (8, -1)

2. A (7, -6) B (2,6)

3. A (-6, 3) B (-2,-5)

4. A (2,-3) B (6, 1)

5. A $\left(\frac{1}{5}, \frac{1}{10}\right)$ B $\left(\frac{4}{5}, \frac{9}{10}\right)$

6. A $\left(1, \frac{1}{2}\right)$ B $\left(3, \frac{3}{2}\right)$

7. A $\left(3\sqrt{2}, \sqrt{7}\right)$ B $\left(\sqrt{2}, -\sqrt{7}\right)$

8. A $(3, \sqrt{3})$ B $(1, -\sqrt{3})$

9. A $(\sqrt{3},\ 1+\sqrt{5})$ B $(-\sqrt{3},\ 1-\sqrt{5})$

10. A $(2\sqrt{2},\ \sqrt{3}-\sqrt{2})$ B $(-\sqrt{2},\ \sqrt{3}+\sqrt{2})$

11. A (-1, 3) B (3, -1)

12. A (-2c , d) B (2c, -3d)

Part 2: Use the given distance d between the two points to solve for x.

13. (0, 1), (x, 4) $\boldsymbol{d} = \sqrt{34}$

14. (5, 2), (x, -3) d = 5

15. (x, -10), (-8, 4) $\boldsymbol{d} = 7\sqrt{5}$

16. (-3, x), (6, -2) d = 10

Part 3: Given the coordinates of the midpoint M of $\overline{AB}$ and one of the endpoints, find the coordinates of the other endpoint.

17. M(5,3), A(-1,6) B = _____

18. M(-7, 4), B (-10, 10), A = ____

Bookwork: p. 726 (33 - 34, 44, 50 – 54)