Name Key Date _____ Pd ___

CYU 1.3 Midpoint & Distance Formulas

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

G *Use when you completed the problem in a group*

X *Use when a question was attempted but wrong (get help)*

N *Use when a question was not even attempted*

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Midpoint Formula		5, 6, 7, 8	9
Distance Formula	1 – 4,	10	
Bisect, midpoint, congruent, coordinate plane, perimeter	1 – 7, 10	8, 9	

1. Plot the points in a coordinate plane. Then determine whether $\overline{AB}$ *and* $\overline{CD}$ are congruent.
   A(- 4, 5), B (- 4, 8), C(2, - 3), D(2, 0) yes, 3u

2. Plot the points in a coordinate plane. Then determine whether $\overline{AB}$ *and* $\overline{CD}$ are congruent.
   A(6, - 8), B(6, 1), C(7, - 2), D(- 2, - 2) yes, 9u

3. Plot the points in a coordinate plane. Then determine whether $\overline{AB}$ *and* $\overline{CD}$ are congruent.
   A(- 5, 6), B(- 5, - 1), C(7, -2), D(3, 3) yes, 7u

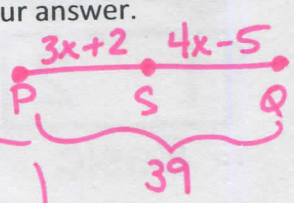
4. Plot the points in a coordinate plane. Then determine whether $\overline{AB}$ *and* $\overline{CD}$ are congruent.
   A(10, - 4), B(3, - 4), C(- 1, 2), D(- 1, 5) no
   7u 3u

5. PS = 3x + 2, SQ = 4x - 5, PQ = 39u. Is S the midpoint of $\overline{PQ}$? Justify your answer.

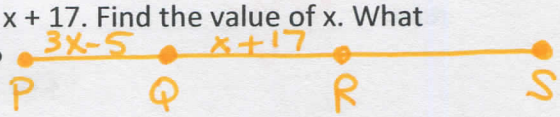
   PS + SQ = PQ
   (3x+2) + (4x-5) = 39
   7x - 3 = 39
   7x = 42
   x = 6

   PS = 3(6)+2 = 20
   SQ = 4(6)-5 = 19

   S is not the midpoint 20 ≠ 19



6. Suppose Q is the midpoint of $\overline{PR}$. PQ = 3x - 5 and QR = x + 17. Find the value of x. What length should PS have if R is to be the midpoint of $\overline{QS}$?



$3x-5 = x+17$
$2x-5=17$
$2x=22$
$x=11$

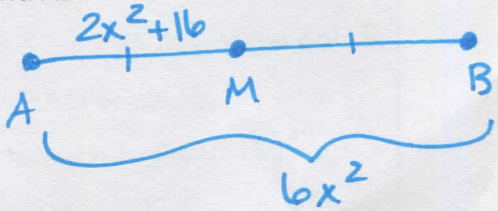
$PQ = 3(11)-5 = 28u$
$QR = 11+17 = 28u$
$PR = PQ+QR = 28+28 = 56u$

$PS = 84u$

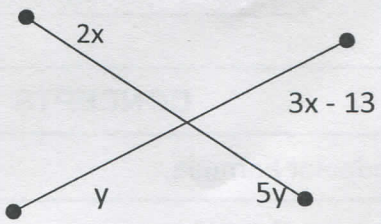
7. M is the midpoint of AB. If $AM = 2x^2 + 16$, $AB = 6x^2$, find AB.

$2(AM) = AB$
$2(2x^2+16) = 6x^2$
$4x^2+32 = 6x^2$
$32 = 2x^2$
$16 = x^2$
$x = \pm 4$

$AB = 6(\pm 4)^2$
$= 6(16)$
$AB = 96u$



8. Find the value of x and y that makes AB and CD bisect each other.



$\begin{cases} 2x = 5y \\ y = 3x-13 \end{cases}$

$2x = 5(3x-13)$
$2x = 15x-65$
$-13x = -65$
$x = 5$

$y = 3(5)-13$
$= 15-13$
$y = 2$

9. If A is (-3, 5) and M is (7, -12) then find B if M is the midpoint of B.

$B(17, -29)$

$\frac{-3+x_1}{2} = 7$
$-3+x_1 = 14$
$x_1 = 17$

$\frac{5+y_1}{2} = (12)2$
$5+y_1 = -24$
$y_1 = -29$

10. Find the perimeter of a triangle with coordinates (5, 6) (8, -4) and (12, 10).
Leave your answer exact and simplified.

$AB = \sqrt{109}$
$BC = \sqrt{212}$
$AC = \sqrt{65}$

$P = \sqrt{109} + \sqrt{212} + \sqrt{65}$
$\approx 33.1u$

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.