

Name: \_\_\_\_\_

Period: \_\_\_\_\_

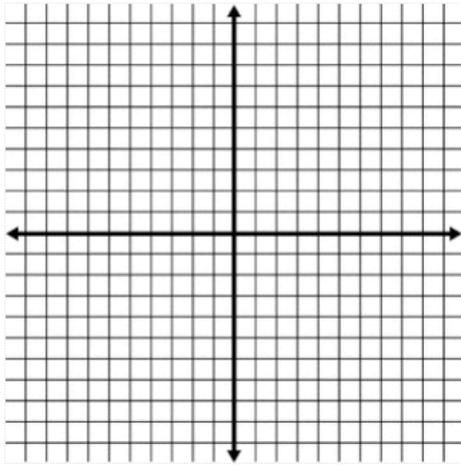
## NS & L Day 6 IN CLASS

## Secondary 2 Honors

Those silly wizards are at it again! Remember, Malfoy is in the car on the ground, he must follow the streets to get to Gringotts. Harry can fly along a straight line to get there, as he is borrowing Ron's magic flying car.

*Make sure to label which coordinate is the starting point and which is the finishing point for each question.*

1) They race from  $(-5, -6)$  to  $(2, -1)$



- Sketch both Harry's and Draco's path on the graph to the right.
- Explain how to find Draco's horizontal distance ALGEBRAICALLY, then find it.
- Explain how to find Draco's vertical distance ALGEBRAICALLY, then find it.
- Explain how to use Draco's horizontal and vertical distances to find Harry's distance travelled, then find it.

2) This time they race from  $(2, -1)$  to  $(X, Y)$

- Find an expression for Draco's TOTAL horizontal distance.
- Find an expression for Draco's TOTAL vertical distance.
- Use your answers above to find an expression for Harry's distance travelled in terms of  $X$  &  $Y$ .

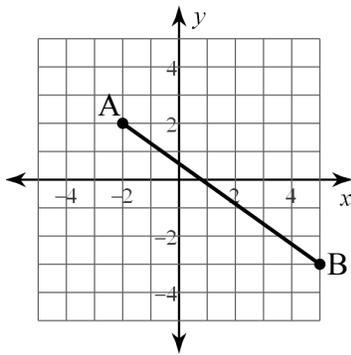
3) Think of  $(X_{\text{start}}, Y_{\text{start}})$  as  $(X_1, Y_1)$  and  $(X_{\text{finish}}, Y_{\text{finish}})$  as  $(X_2, Y_2)$ . So this time they race from  $(X_1, Y_1)$  to  $(X_2, Y_2)$ .

- Find an expression for Draco's TOTAL horizontal distance.
- Find an expression for Draco's TOTAL vertical distance.
- Use your answers above to find an expression for Harry's distance travelled.
- Does it matter which point we call the starting point and which point we call the finishing point when we are finding the distance between the 2 points? Explain why or why not.

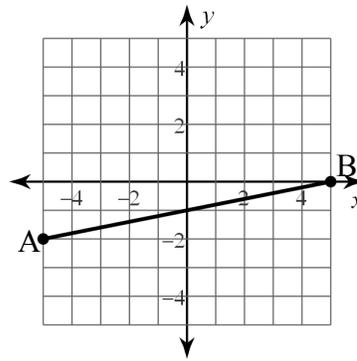
## DISTANCE FORMULA:

Find the EXACT distance between points A & B. Show your work!!!

4)



5)



Find the EXACT distance between each of the following pairs of coordinates.

6)  $(-1, 9)$  &  $(-3, -5)$

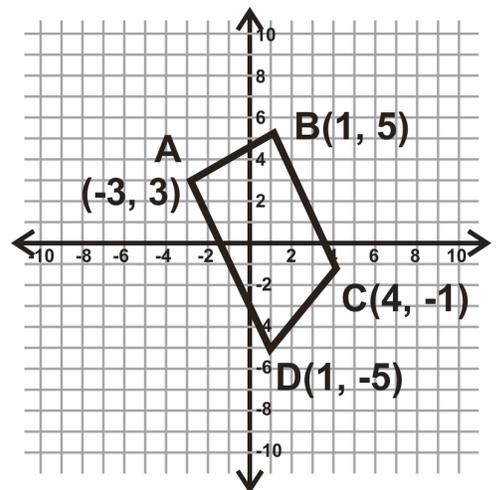
7)  $(3, -10)$  &  $(0, 0)$

8)  $(5, 2)$  &  $(-3, 4)$

## Coordinate Proofs

9) Hermione is helping Ron with his Muggle Studies homework. The assignment is to make an informal coordinate proof that will verify that the following shape is a trapezoid. Ron is having a hard time wanting to show his informal proof. “Of course it’s a trapezoid! Look at it!” he says to Hermione. She replies, “well how do you know?” His response “because I’m magic, duuhhhh!” After a long stern look, Hermione says “yes, Ronald, but this is MUGGLE STUDIES!!!!” Fill out the following to help Ron with his homework:

- What properties would the figure on the coordinate plane need to have to be classified as a trapezoid?
- What properties would the figure need to NOT have for trapezoid to be its most specific classification?
- Showing ALL your work verify your answers to parts a & b for the figure. Make sure to organize & label your work as this is your informal coordinate proof. Remember, you cannot do anything in your head, because unfortunately we aren’t magic! ☺



10) Given: Quadrilateral  $ABCD$  has vertices  $A(-5,6)$ ,  $B(6,6)$ ,  $C(8,-3)$ , and  $D(-3,-3)$ .  
Prove: Quadrilateral  $ABCD$  is a parallelogram but is neither a rhombus nor a rectangle.

a) What needs to be true in order to prove that  $ABDC$  is a parallelogram?

b) What needs to be true in order to prove that  $ABDC$  is NOT a rhombus?

c) What needs to be true in order to prove that  $ABDC$  is NOT a rectangle?

d) Plot the points, and connect them, for Quadrilateral  $ABDC$ .

e) Showing all your work, remember this is your coordinate proof, verify that Quadrilateral  $ABCD$  is a parallelogram but is neither a rhombus nor a rectangle.

