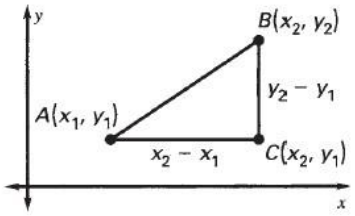
Chapter 4- Triangle Relationships

4.5 The Distance Formula		Name:
		Day 8 Notes
	Considering two points, can I find the distance between them?	
Point		
Nonnegotiable		
Coordinate Plane		

THE DISTANCE FORMULA

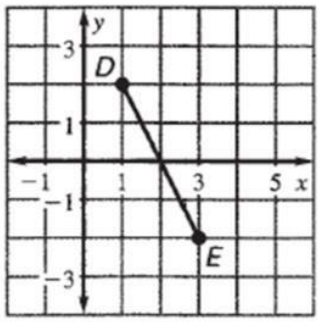
If $A(x_1, y_1)$ and $B(x_2, y_2)$ are points in a coordinate plane, then the distance between A and B is

$AB = \sqrt{(\quad)^2 + (\quad)^2}$.



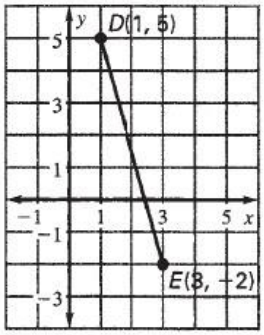
Example 3 ***Use the Distance Formula***

Find the distance between $D(1, 2)$ and $E(3, -2)$.



Follow-Up

Can Example 3 be done using the Pythagorean Theorem rather than the Distance Formula? Explain.

	Checkpoint Find the distance between the points. 4. 
	USING ONLY THE DISTANCE FORMULA: Find the distance between the two points (5,3) and (10, 9).

Summary:

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Chapter 4- Triangle Relationships

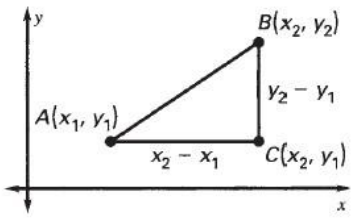
4.5 The Distance Formula		Name:
		Day 8 Notes
	Considering two points, can I find the distance between them?	
Point	• Has an x and a y coordinate • (x, y) -always in this order • Ex. (3, 2) -3 over on the x axis, 2 up on the y axis	
Nonnegotiable	• Something that cannot change. It is permanently the way it is	
Coordinate Plane	• Where our points lie. • (x, y) plane or cartesian plane	

$$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

THE DISTANCE FORMULA

If $A(x_1, y_1)$ and $B(x_2, y_2)$ are points in a coordinate plane, then the distance between A and B is

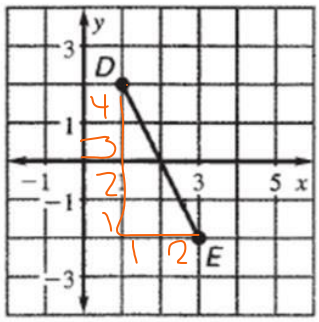
$AB = \sqrt{(\quad)^2 + (\quad)^2}$.



D= (1, 2)
X1=1, Y1=2
E=(3, -2)
X2=3, Y2=-2

Example 3 ***Use the Distance Formula***

Find the distance between $D(1, 2)$ and $E(3, -2)$.



$\sqrt{(3-1)^2+(-2-2)^2}$

$\sqrt{(2)^2+(-4)^2}$

$\sqrt{4+16}$

$\sqrt{20}$

=4.472

Yes, if I can create a right triangle. (90* angle)
2^2+4^2=c^2
C^2=20
C=4.472

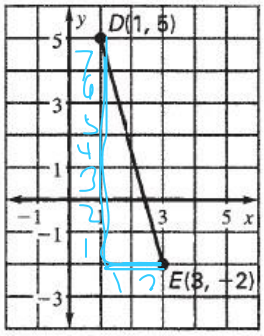
Follow-Up

Can Example 3 be done using the Pythagorean Theorem rather than the Distance Formula? Explain.

Pythagorean theorem:
2^2+(-7)^2=c^2
4+49=c^2
C=7.280

Checkpoint Find the distance between the points.

4.



D= (1, 5) x1=1, y1=5

E= (3, -2) x2=3, y2=-2

$\sqrt{(3-1)^2 + (-2-5)^2}$

$\sqrt{(2)^2 + (-7)^2}$

$\sqrt{4+49}$= 7.280

A: (5, 3) x1=5 y1=3
B: (10, 9) x2=10 y2=9

USING ONLY THE DISTANCE FORMULA: Find the distance between the two points (5,3) and (10, 9).

$\sqrt{(10-5)^2 + (9-3)^2}$

$\sqrt{(5)^2 + (6)^2}$

$\sqrt{25+36}$

7.810

Summary:

I learned how to find the distance between 2 points using the distance formula $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

I learned to find the distance using the Pythagorean Theorem if I can form a right triangle (on a graph).