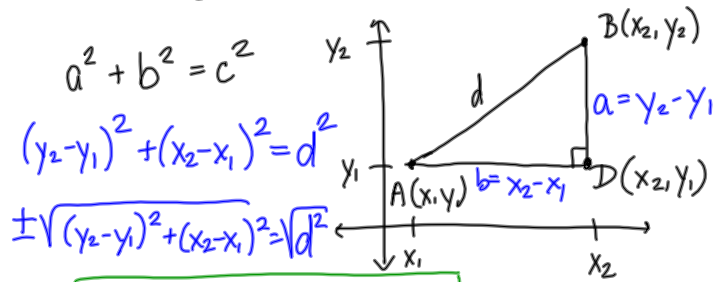


Sec. 8.1 Apply the Distance and Midpoint Formulas



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

distance formula

Ex: What is the distance between  
a. (-5, 1) and (-3, 2)?

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

$$= \sqrt{(2)^2 + (1)^2} = \sqrt{4 + 1} = \sqrt{5}$$

b. (3, -3) and (-1, 5)

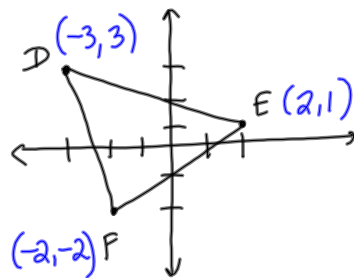
$$d = \sqrt{(-1 - 3)^2 + (5 - (-3))^2}$$

$$= \sqrt{(-4)^2 + (8)^2} = \sqrt{16 + 64} = \sqrt{80}$$

*(Handwritten notes: 80 = 4 \* 20 = 4 \* 4 \* 5 = 16 \* 5)*

$$= 4\sqrt{5}$$

Classify  $\triangle DEF$  as scalene, isosceles, or equilateral.  
no = sides . 2 = sides  
3 = sides



SCALENE

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

$$= \sqrt{(5)^2 + (-2)^2} = \sqrt{25 + 4}$$

$$= \sqrt{29}$$

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

$$= \sqrt{(1)^2 + (-5)^2} = \sqrt{1 + 25}$$

$$= \sqrt{26}$$

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

$$= \sqrt{4^2 + 3^2} = \sqrt{16 + 9}$$

$$= \sqrt{25}$$

$$= 5$$

p. 493 (23-29) odd