

**Distance Between Two Points:**

A. To find the distance between two points:  $(x_0, y_0)$  and  $(x_1, y_1)$  use the following formula:

$$\sqrt{(x_0 - x_1)^2 + (y_0 - y_1)^2}$$

B. Many times this type of problem can be done quicker if you know common [\*Pythagorean Triples\*](#).

**C. Examples**

Ex [1] The distance between  $(-2, 4)$  and  $(3, -8)$  is \_\_\_\_\_.

- In this problem we should subtract the x-values first. So  $-2 - 3 = -5$ .
- After subtracting the y-values we get:  $4 - (-8) = 4 + 8 = 12$ .
- You should know the Pythagorean Triple:  $(5, 12, 13)$ . The answer is 13.  
If you don't know this you can see that  $\sqrt{(-5)^2 + (12)^2} = \sqrt{169} = 13$ .

Ex [2] The distance between  $(1, -3)$  and  $(7, 5)$  is \_\_\_\_\_.

- Subtracting the x-values we get  $1 - 7 = -6$ .
- Subtracting the y-values we get  $-3 - 5 = -8$ .
- You should know the Pythagorean Triple:  $(6, 8, 10)$ . The answer is 10.  
If you don't know this you can see that  $\sqrt{(-6)^2 + (-8)^2} = \sqrt{100} = 10$ .