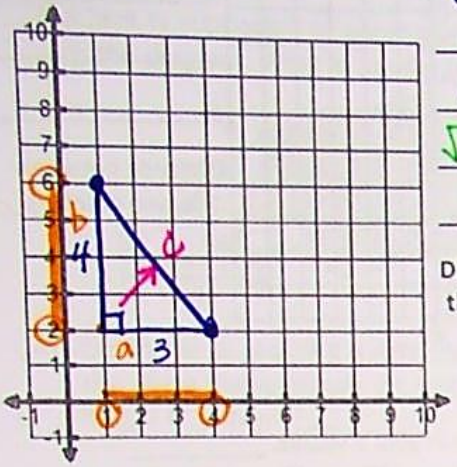
UNIT 6: IRRATIONAL MATH

Objectives: I can apply the Pythagorean Theorem to find the distance between two points.

Finding the Distance between Two Points

① Graph the points. ② Draw a right triangle. ③ Use the Pythagorean Theorem to find the distance between the points. Round answers to the nearest **whole number** as necessary.

Example #1) $(1,6)$ *and* $(4,2)$



$c^2 = a^2 + b^2$

$c^2 = (3)^2 + (4)^2$

$c^2 = 9 + 16$

$\sqrt{c^2} = \sqrt{25}$

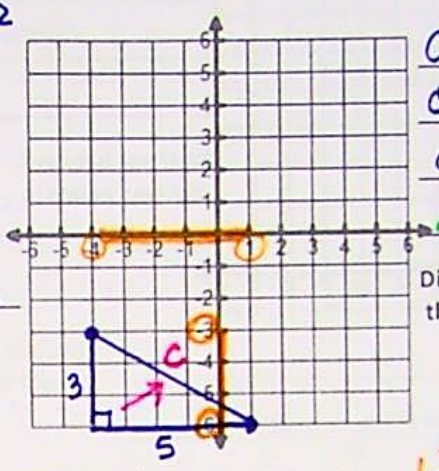
$c = 5$

Distance between the two points is 5u

Find the difference in your x values. $4 - 1 = 3$
This is also called: Δx or $x_2 - x_1$

Find the difference in your y values. $6 - 2 = 4$
This is also called: Δy or $y_2 - y_1$

Practice #3) $(-4,-3)$ *and* $(1,-6)$



$c^2 = 3^2 + 5^2$

$c^2 = 9 + 25$

$c^2 = 34$

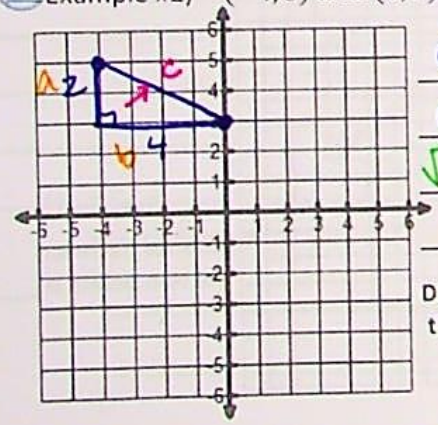
$\sqrt{c^2} = \sqrt{34}$

Distance between the two points is ≈6

Find the difference in your x values. $1 - (-4) = 5$
This is also called: Δx or $x_2 - x_1$

Find the difference in your y values. $-3 - (-6) = 3$
This is also called: Δy or $y_2 - y_1$

Example #2) $(-4,5)$ *and* $(0,3)$



$c^2 = 2^2 + 4^2$

$c^2 = 4 + 16$

$\sqrt{c^2} = \sqrt{20}$

$c \approx 4$

Distance between the two points is 4 ≈ (4.5)

Find the difference in your x values. $0 + 4$ $0 - (-4) = 4$
This is also called: Δx or $x_2 - x_1$

Find the difference in your y values. $5 - 3 = 2$
This is also called: Δy or $y_2 - y_1$

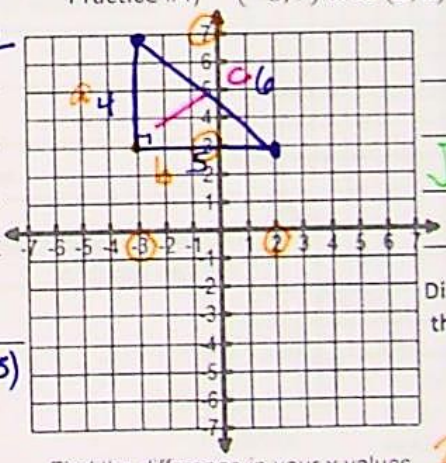
Find the area of the triangle in #2. $4u^2$

(Show work.) $A = \frac{bh}{2} = \frac{(4)(2)}{2} = \frac{8}{2} = 4u^2$

Find the perimeter of the triangle in #2. 10u

(Show work.) $P = a + b + c \approx 2 + 4 + 4$

Practice #4) $(-3,7)$ *and* $(2,3)$



$c^2 = a^2 + b^2$

$c^2 = 4^2 + 5^2$

$c^2 = 16 + 25$

$\sqrt{c^2} = \sqrt{41}$

$c \approx 6$

Distance between the two points is ≈6u

Find the difference in your x values. $2 + (+3) = 5$
This is also called: Δx or $x_2 - x_1$

Find the difference in your y values. $7 - 3 = 4$
This is also called: Δy or $y_2 - y_1$

Find the area of the triangle in #4. $10u^2$

(Show work.) $A = \frac{bh}{2} = \frac{(5)(4)}{2} = \frac{20}{2} = 10$

Find the perimeter of the triangle in #4. 15u

(Show work.) $P = a + b + c = 4 + 5 + 6 \approx 15u$