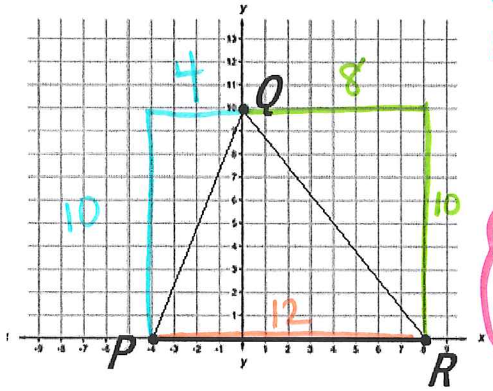
Name Key

Triangle Coordinate Geometry Examples Day 2

6. a.) Is ΔPQR isosceles? Why or why not. SHOW MATH! To check congruent sides, distances!!



$4^2+10^2=PQ^2$

$16+100=PQ^2$

$\sqrt{116}=PQ$

$\boxed{2\sqrt{29}=PQ}$

$8^2+10^2=QR^2$

$64+100=QR^2$

$\sqrt{164}=QR$

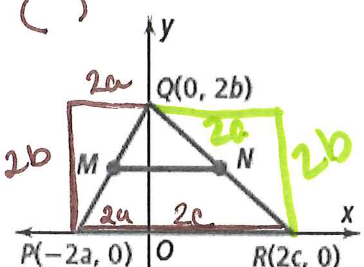
$\boxed{2\sqrt{41}=QR}$

PR = 12 units (Just count!)

No sides are ≅ ∴ Δ PQR is NOT isosceles

b.) Is ΔPQR isosceles? Why or why not. SHOW MATH! To check congruent sides, Distances!!

must use $(\;)^2$



$(2b)^2+(2a)^2=PQ^2$

$4b^2+4b^2=PQ^2$

$\boxed{\sqrt{4b^2+4b^2}=PQ}$

$(2b)^2+(2c)^2=QR^2$

$4b^2+4c^2=QR^2$

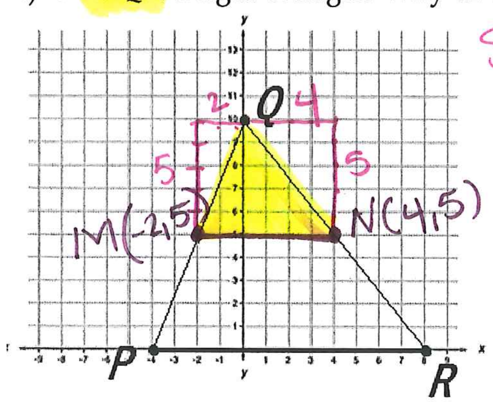
$\boxed{\sqrt{4b^2+4c^2}=QR}$

$PR=2a+2c$ Just count it!

No sides are ≅ ∴ Δ PQR is NOT isosceles

7. M and N are midpoints of QP and QR respectively for ΔPQR. P(-4,0), Q(0,10), and R(8,0). Record your midpoints from question 2.

a.) Is ΔMQN a right triangle? Why or why not. SHOW MATH! To check for right angles, slopes! ⊥ slopes!



Slope $QN=-\frac{5}{4}$

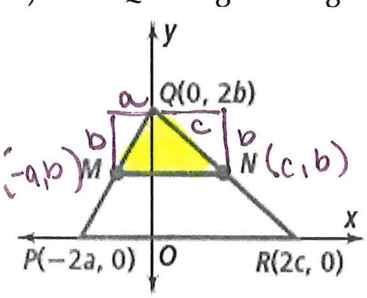
slope $MQ=\frac{5}{2}$

Slope $MN=\frac{0}{6}=0$

No ⊥ Slopes ∴ Δ MQN is not a Right Δ

Record your midpoints from question 2.

b.) Is ΔMQN a right triangle? Why or why not. SHOW MATH! To check for right angles, ⊥ slopes.



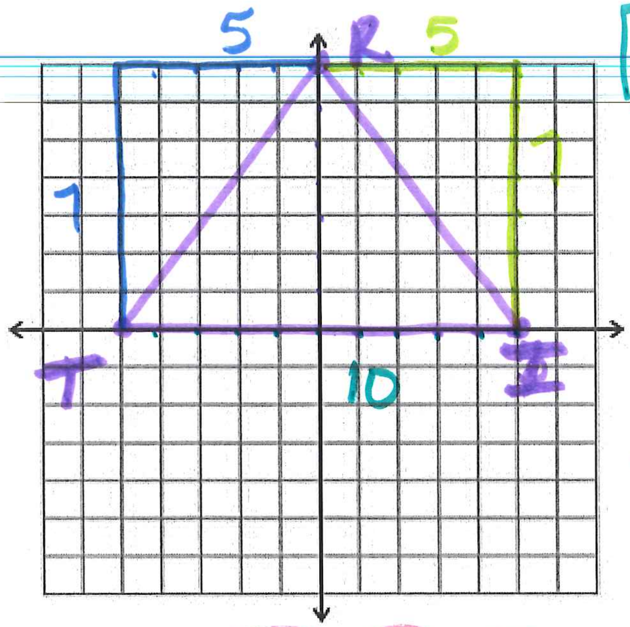
Slope $MN=0$

Slope $QN=-\frac{b}{c}$

Slope $MQ=\frac{b}{a}$

No ⊥ Slopes ∴ Δ MQN is NOT a Right Δ

8. Determine if ΔTRI is an isosceles triangle if you are given the vertices T(-5,0), R(0,7), and I(5,0).



$\boxed{TI = 10 \text{ units}}$ Just count!

$7^2 + 5^2 = RI^2$

$49 + 25 = RI^2$

$\boxed{\sqrt{74} = RI}$

$7^2 + 5^2 = TR^2$

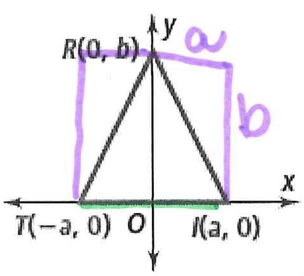
$49 + 25 = TR^2$

$\boxed{\sqrt{74} = TR}$

Oh, look! Same lengths!

$RI \cong TR$ $\therefore \Delta TRI$ is isosceles by definition

9. Determine if ΔTRI is an isosceles triangle if you are given the vertices below.



$\boxed{TI = 2a}$ Just count

$a^2 + b^2 = RI^2$

$\boxed{\sqrt{a^2+b^2} = RI}$

$a^2 + b^2 = RT^2$

$\boxed{\sqrt{a^2+b^2} = RT}$

oh look!

$RI \cong RT$ $\therefore \Delta TRI$ is isosceles by definition!