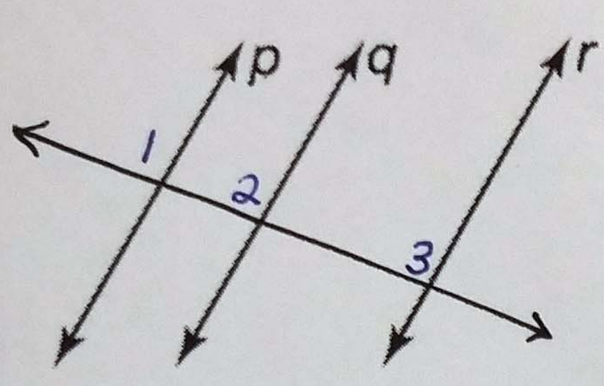
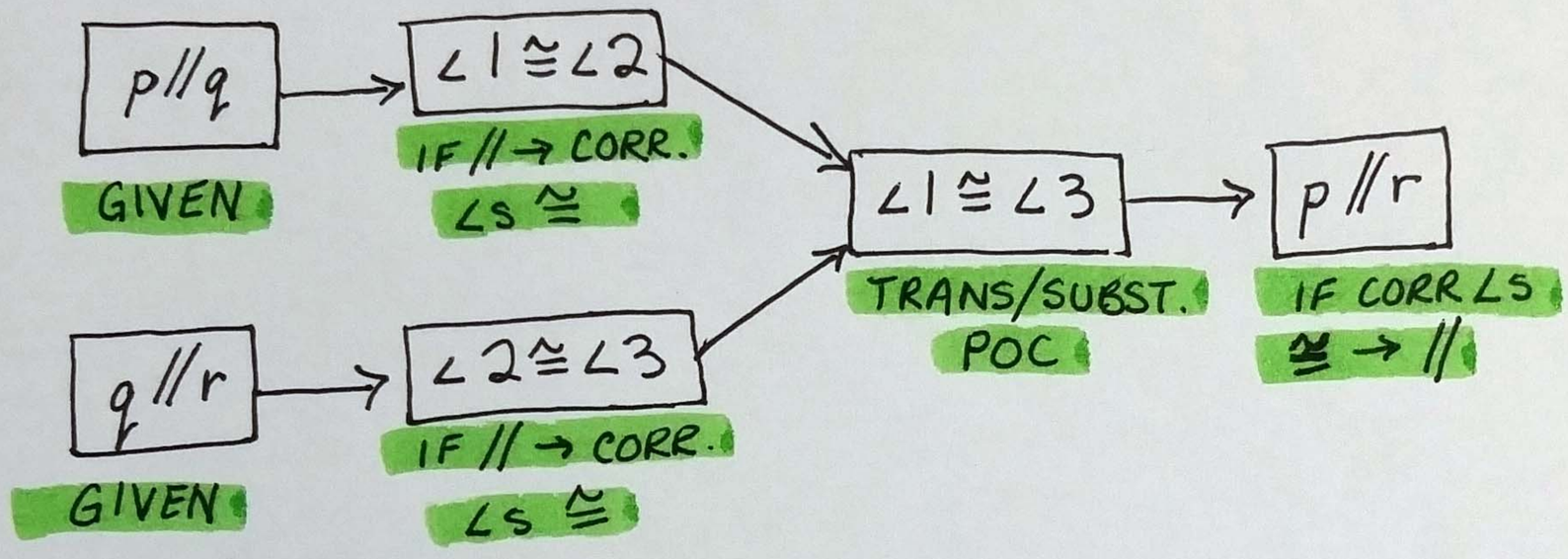
Name Key Date _____ Period _____

More about Parallel Lines

Transitive Property of Parallel Lines: If two lines are parallel to the same line, then they are parallel to each other.



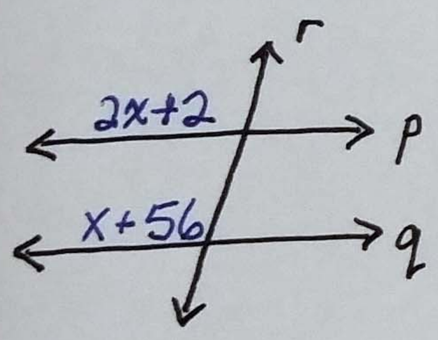
PROOF: **Given**: $p \parallel q$ and $q \parallel r$ **Prove**: $p \parallel r$



Examples:

Use the diagram for #1-3

1. Find the value of x that makes $p \parallel q$



CORR. ∠S ≅

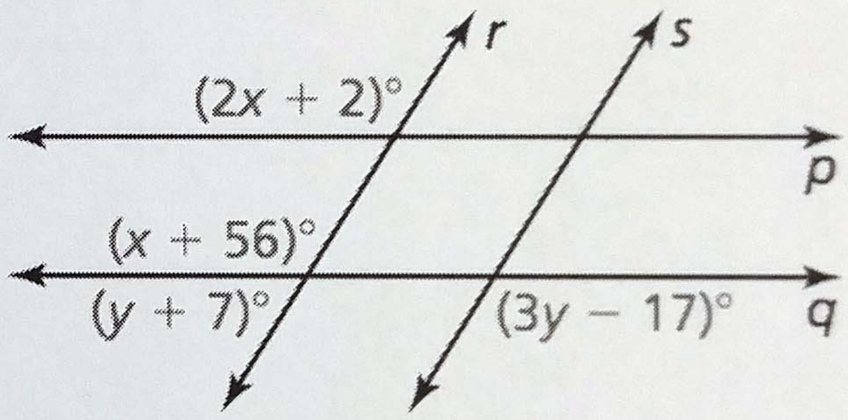
$2x+2 = x+56$

$-x \quad -x$

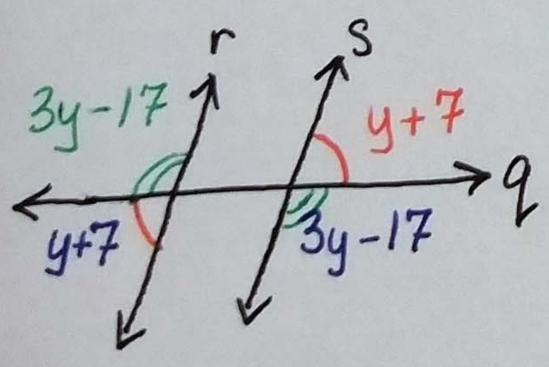
$x+2 = 56$

$-2 \quad -2$

$\boxed{x = 54}$



2. Find the value of y that makes $r \parallel s$



LINEAR PAIRS SUPPLEMENTARY

$y+7+3y-17 = 180$

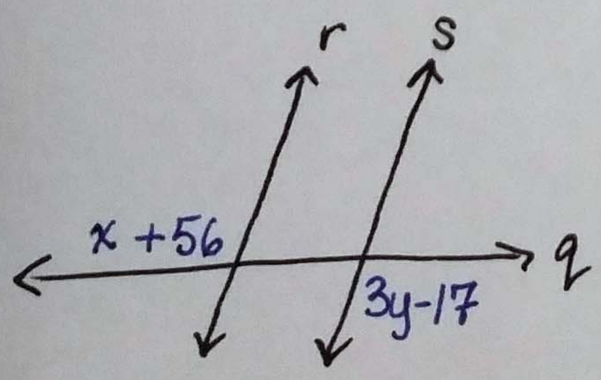
$4y-10 = 180$

$+10 \quad +10$

$\frac{4y}{4} = \frac{190}{4}$

$\boxed{y = 47.5}$

3. Based on your findings from #1 and #2, can r be parallel to s and can p be parallel to q at the same time? Explain your reasoning.



ALT. EXT. ∠S ≅

$x+56 \stackrel{?}{=} 3y-17$

$54+56 \stackrel{?}{=} 3(47.5)-17$

$110 \stackrel{?}{\neq} 125.5$

p//q NOT ON SAME DIAGRAM r//s