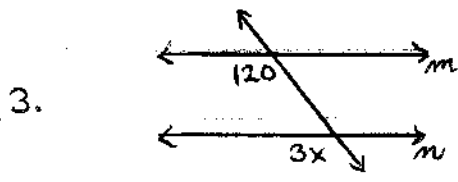


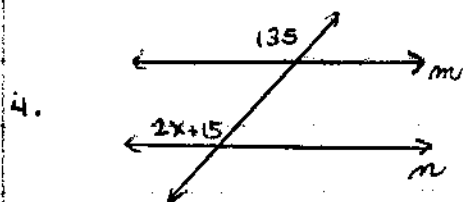
Geometry, Ch 3-3 Exercises, pg. 157 #3-15, 17, 19-21, 28

ALGEBRA Find the value of x that makes $m \parallel n$



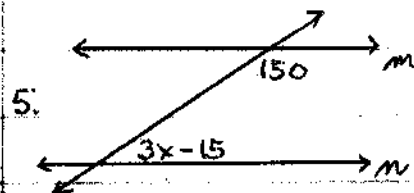
Angles are corresponding.

Parallel if congruent: $120 = 3x$
 $40 = x$



Angles are corresponding.

Parallel if congruent: $2x + 15 = 135$
 $2x = 120$
 $x = 60$



Consecutive Interior.

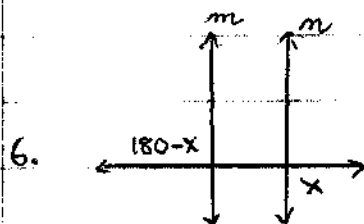
Parallel if supplementary:

$$150 + 3x - 15 = 180$$

$$3x + 135 = 180$$

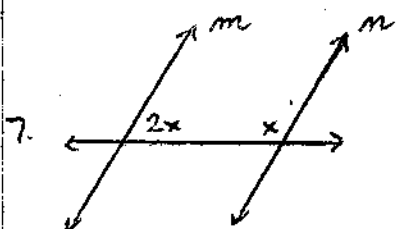
$$3x = 45$$

$$x = 15$$



Alternating Exterior

Parallel if congruent: $180 - x = x$
 $180 = 2x$
 $90 = x$



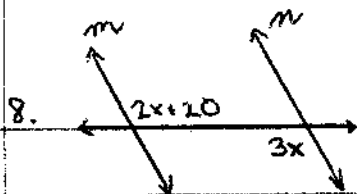
Consecutive Interior

Parallel if supplementary:

$$2x + x = 180$$

$$3x = 180$$

$$x = 60$$

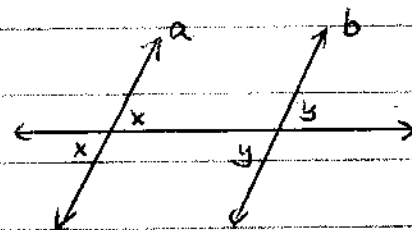


Alternate Interior

Parallel if congruent: $2x + 20 = 3x$

$$20 = x$$

9. A student believes lines a and b are parallel. Describe/correct student's error.

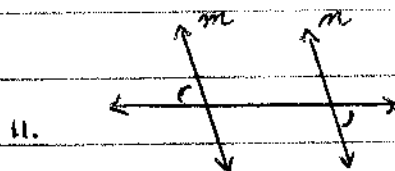


The two lines may look parallel, but with no indicated relation between x and y , that conclusion can not be made.

Is there enough info to prove $m \parallel n$? Justify.



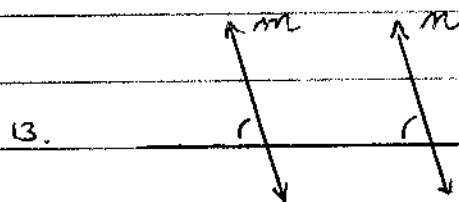
Yes; Alt. Int. Angles $\cong$



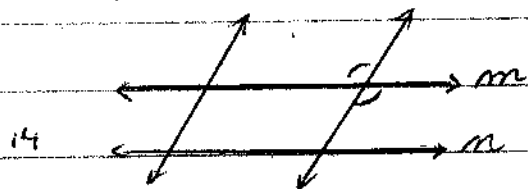
Yes, Alt. Ext Angles $\cong$



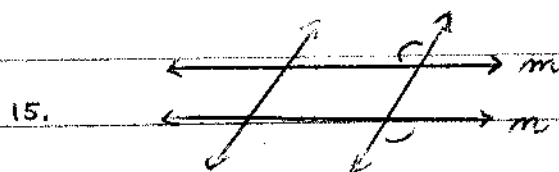
No, not enough info, although they look to be parallel.



Yes, corresponding angles $\cong$

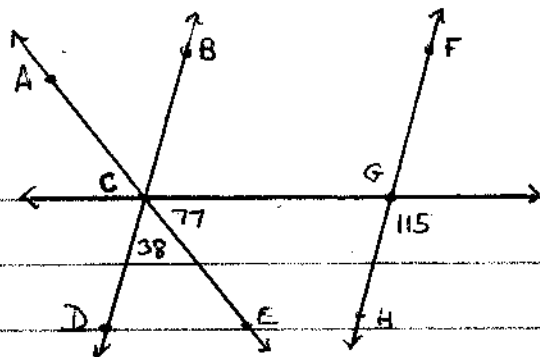


No, a pair of Vertical Angles is not sufficient to show parallel.



Yes, Alt Ext Angles $\cong$

17. Complete the steps to determine whether $\overleftrightarrow{DB}$ and $\overleftrightarrow{HF}$ are parallel.



a. Find $m\angle DCG$, $\angle DCG = \angle DCE + \angle ECG$ Angle Addition
 $\angle DCG = 38^\circ + 77^\circ$
 $\angle DCG = 115^\circ$

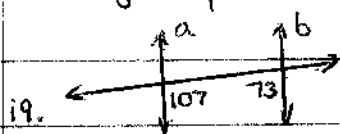
and $m\angle CGH$ $\angle CGH$ is a Linear Pair with 115°
 $\angle CGH + 115^\circ = 180^\circ$
 $\angle CGH = 65^\circ$

- b. Describe the relationship between $\angle DCG$ and $\angle CGH$.

The two angles are supplementary.

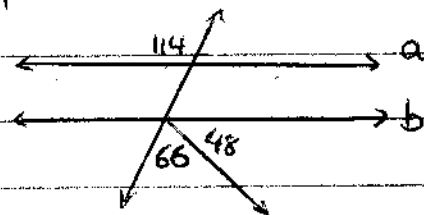
- c. Are $\overleftrightarrow{DB}$ and $\overleftrightarrow{HF}$ parallel? Yes, because the two lines have supplementary consec. int. angles.

Can you prove that lines a and b are parallel?



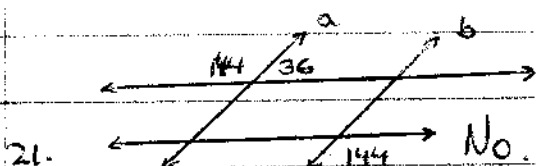
Yes, consecutive interior angles are supplementary

20.



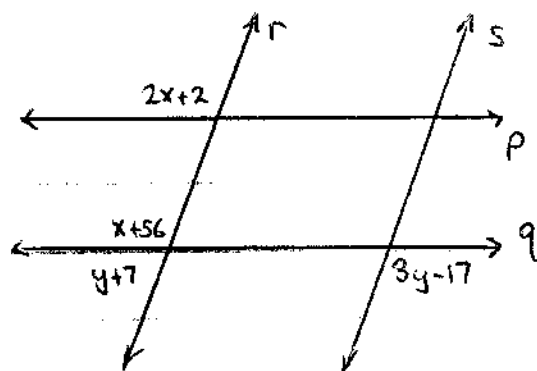
$$66 + 48 = 114.$$

Yes, alternating ext. angles are congruent



Insufficient info across a single transversal to justify parallel lines.

28. Use the diagram.



a. Find x , so $p \parallel q$.

Corresponding angles must be $\cong$: $2x+2 = x+56$

$$x = 54$$

b. Find y , so $r \parallel s$.

The $(y+7)$ and the $(3y-17)$ angles must be supplementary.

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

$$4y - 10 = 180$$

$$4y = 190$$

$$y = 47.5$$

c. Can $r \parallel s$ at the same time as $p \parallel q$?

Evaluate angle measures:

$$2(54) + 2 = 110$$

$$(54) + 56 = 110$$

$$(47.5) + 7 = 54.5$$

$$3(47.5) - 17 = 125.5$$

x-angles

y-angles

Note that 110° and 54.5° do not sum to 180° , and are NOT a Linear Pair.

Conclusion is that lines

r and s cannot be parallel at the same time as lines p and q .

