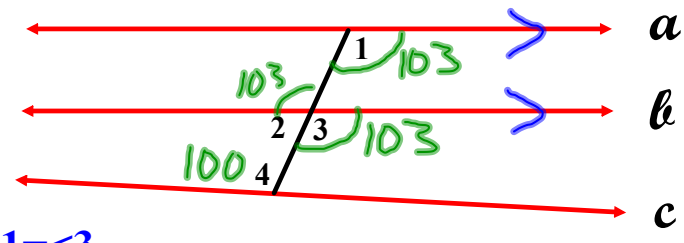
Sec. 3.5 - Proving Lines Parallel

Ways to Prove Lines Parallel

1) If corresponding angles are =. (Post.3.4)
2) If alternate exterior angles are =. (Theorem 3.5)
3) If consecutive interior angles are supplementary. (Thm. 3.6)
4) If alternate interior angles are =. (Thm.3.7)
5) If 2 lines are perpendicular to the same line. (Thm. 3.8)

Given the following information, is it possible to prove that any of the lines shown are parallel? If so, state the postulate or theorem that justifies your answer.



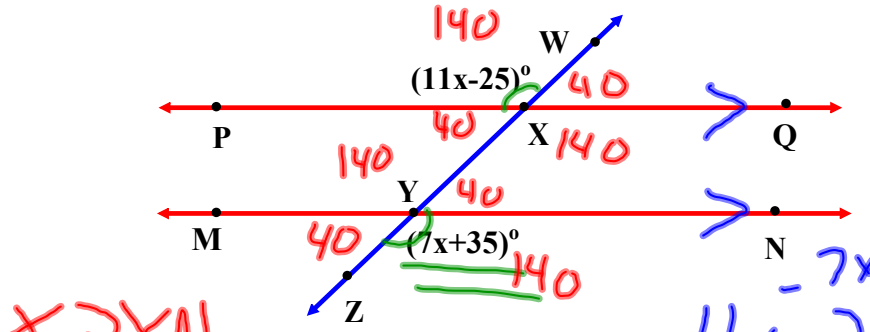
a) <1=<3

Corresponding ∠'s ≅
a ∥ b, Post. 3.4

b) <1=103 & <4=100

None

Find < ZYN so that line PQ is parallel to line MN.



140
40
40
140
140
40
40
140

$m\angle ZYN = 7(15) + 35$

$= 105 + 35$

$m\angle ZYN = 140°$

$11x - 25 = 7x + 35$

$-7x \quad -7x$

$4x - 25 = 35$

$+25 \quad +25$

$\frac{4x}{4} = \frac{60}{4}$

$x = 15$

Homework:

p.209, # 8-16 even, 17-20 all, 23, 29, 34, 37, 44-47 all, 49, 54-56 all

Show work on 16-20, 46