Use the following image for #1-6. Image is **NOT** drawn to scale.
Line l is parallel is line m **(l‖m)**. Line o is perpendicular to lines l and m **($o \perp l, m$)**.
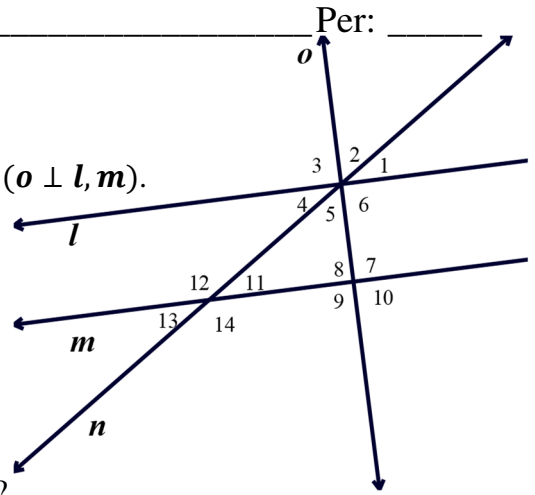
1. ∠11 and ∠13 are _____ angles. If
   $\angle 11 = [-3(2x - 5)]°$ and $\angle 13 = (-14x - 17)°$,
   a. What does x equal? _____

   b. What is ∡11? _____   c. What is ∡13? _____

2. ∠13 and ∠14 are a _____ pair or _____ angles. Together, they equal _____
   degrees. If ∡13 $= (s - 2)°$ and ∡14 $= (3s + 2)°$,
   a. What does s equal? _____

   b. What is ∡13? _____   c. What is ∡14? _____

3. ∠5 and ∠4 are _____ angles. Together, they equal _____ degrees. If ∡5 $= (3b +$
   $12)°$ and ∡4 $= (2b - 22)°$
   a. What does b equal? _____

   b. What is ∡4? _____   c. What is ∡5? _____

4. ∠4 and ∠11 are _____ _____ angles. If ∡4 $= [2(4p - 3) - 8]°$ and ∡11 $= (4 + 2p)°$.
   a. What does p equal? _____

   b. What is ∡4? _____   c. What is ∡11? _____

5. If ∠3 and ∠10 are _____ _____ angles, and ∡3 $= [-(1 - 2g)]°$ and ∡10 $= (5g + 4g - 8)°$.
   a. What does g equal? _____

   b. What is ∡3? _____   c. What is ∡10? _____

6. If ∠4 and ∠12 are _____ _____ angles, and ∡4 $= (r - 4)°$ and ∡12 $= (3r - 16)°$.
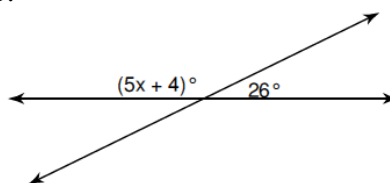   a. What does r equal? _____

   b. What is ∡4? _____   c. What is ∡12? _____

7. State the relationship between the two angles. Find the value of x.
   a.   b.   c.

   $11x - 6$
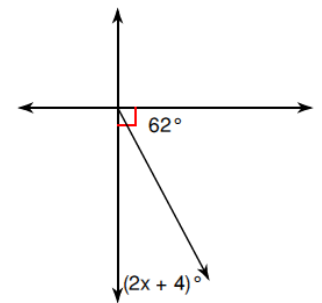
   $9x + 6$

   $(5x + 4)°$ $26°$

   $62°$

   $(2x + 4)°$
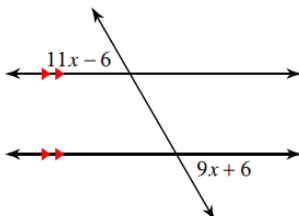
Complete the constructions below using a **compass and straight-edge ONLY**. Show all necessary markings.

8. Construct a line segment **congruent** to the segment below.
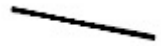
9. Construct a line segment whose length is equal to the **sum** of the lengths of the two-line segments.
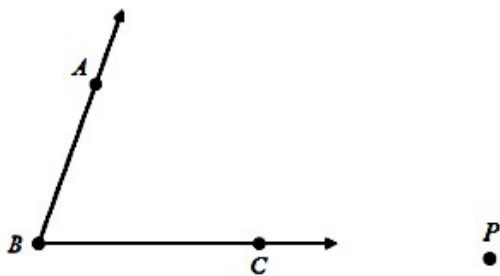
10. Construct a line segment whose length is equal to the **difference** of the lengths of the segments below.
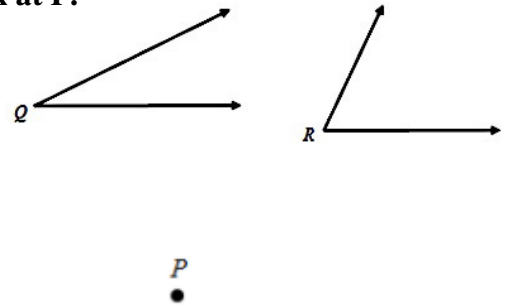
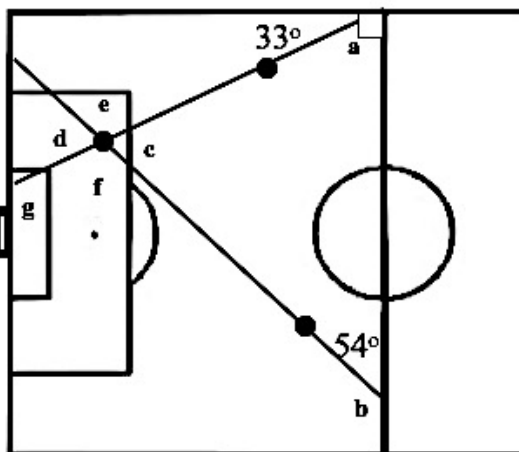11. Construct a line segment **three times longer** than the given segment

12. Construct a copy of the angle ABC **with a vertex at point P.**

13. Construct an angle equal to ∠Q + ∠R with vertex at P.

14. The following diagram is of a soccer field. The center line is parallel with the baseline. **Find the missing angles. Explain your answers**.

a. _____ Why? _____

b. _____ Why? _____

c. _____ Why? _____

d. _____ Why? _____

e. _____ Why? _____

f. _____ Why? _____

g. _____ Why? _____

Extra Credit: Using the figure below, find x and y. (NOTE: The two arrows on the vertical lines. This notation indicates that the lines are parallel.)

$(3x - 70)°$

$(3y + 41)°$

$110°$

$x°$