5A Angle Relations

Name: _____ Per: _____

SHOW YOUR WORK FOR FULL CREDIT. NO WORK, NO CREDIT. NO WORK IN PEN.

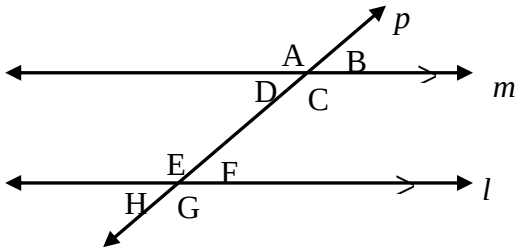
If the $\measuredangle 1 = 65°$, $\measuredangle 2 = 25°$, $\measuredangle 3 = 115°$, and $\measuredangle 4 = 115°$, fill in the following based on these measurements:

A. Complementary Angles B. Congruent Angles C. Supplementary Angles D. None of these

1. $\angle 1$ and $\angle 2$ are _____
2. $\angle 1$ and $\angle 3$ are _____
3. $\angle 1$ and $\angle 4$ are _____
4. $\angle 2$ and $\angle 3$ are _____
5. $\angle 3$ and $\angle 4$ are _____

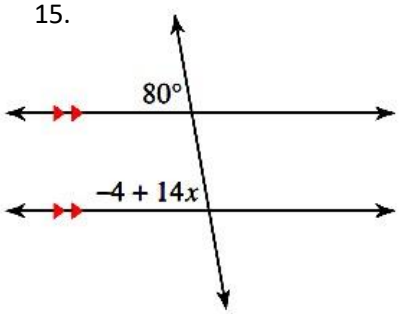
IF $l \parallel m$, give an example of each set of angles (from the image below) **Circle** if the angles would be **congruent** or **supplementary**.

6. Alternate Interior Angles: $\angle C$ and _____ Congruent Supplementary
7. Alternate Exterior Angle $\angle H$ and _____ Congruent Supplementary
8. Same Side Interior $\angle D$ and _____ Congruent Supplementary
9. Same Side Exterior $\angle B$ and _____ Congruent Supplementary
10. Vertical $\angle G$ and _____ Congruent Supplementary
11. Corresponding $\angle F$ and _____ Congruent Supplementary
12. a. Supplementary $\angle E$ and _____ Find two relationships
    b. Supplementary $\angle E$ and _____
13. a. Adjacent $\angle H$ and _____ Find two relationships
    b. Adjacent $\angle H$ and _____
14. Linear Pair $\angle D$ and _____ Congruent Supplementary



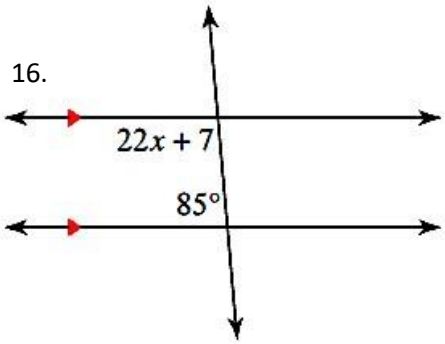
Name the relation of the angles that are marked (**Do not just say congruent or supplementary**). Then **find x, and find ALL angle measures**.

15.



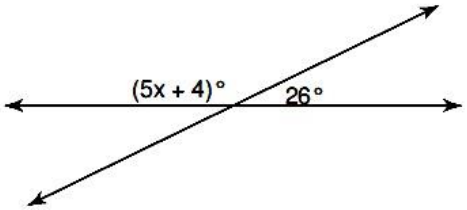
Rel: _____ x=_____

16.



Rel: _____ x=_____

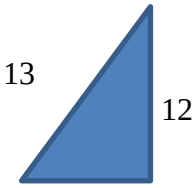
17.



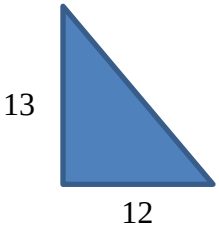
Rel: _____ x=_____

18. Given the following **right** triangles, find the **EXACT** missing side lengths. **Simplify** if possible**. No decimals.**

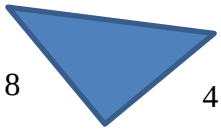
a.



b.



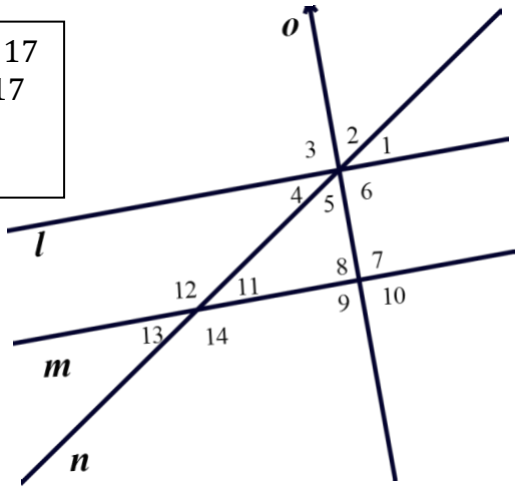
c.



Use the figure to the right below to answer the following questions. In this figure **line *l* is parallel to line *m* and line *o* is perpendicular to line *m***. **SYW**. Each question is independent from the others.
Example: If ∡11 and ∡13 are vertical angles (**the relationship**), the angles are (**congruent**).
(So we know that ∠11 *must equal* ∠13). If ∡11 = [–3(2x – 5)]° and ∡13 = $(-14x - 17)°$.

a. What does x equal? ___-4__
b. What is the measure of ∡11? _39°__
c. What is the measure of ∡13? _39°__

$$-3(2x-5) = -14x - 17$$
$$-6x + 15 = -14x - 17$$
$$8x = -32$$
$$x = -4$$



19. If ∡13 and ∡14 are a _____ pair, together they = _____. If $∡13 = (s - 2)°$ and $∡14 = (3s + 2)°$

a. What does s equal? _____
b. What is ∡13? _____
c. What is ∡14? _____

20. If ∡4 and ∡11 are _____ interior angles, the angles are _____.
If $∡4 = [2(4p - 3) - 8]°$ and $∡11 = (4 + 2p)°$.

a. Solve for p. _____
b. What is ∡4? _____
c. What is ∡11?

21. If ∡13 and ∡1 are alternate _____ angles, they are _____.
If $∡13 = (-1 + 2g)]°$ and $∡1 = (5g + 4g - 8)°$

a. Solve for g. _____
b. What is ∡13? _____
c. c. What is is ∡1? _____

22. If ∡4 and ∡12 are _____ _____ angles, the angles are _____.
If $∡4 = (r - 4)°$ and $∡12 = (3r - 16)°$.

a. Solve for r. _____
b. What is ∡4? _____
c. What is ∡12? _____

23. From the figure above, if ∠ 4 = ∠ 5, find and explain how do you know.

a. *m* ∠ 1 = _____°. HDYK_____
b. *m* ∠ 12 = _____°. HDYK_____
c. *m* ∠ 13 = _____°. HDYK_____