Name_____ Date_____

3.1 – Parallel Lines and Transversals

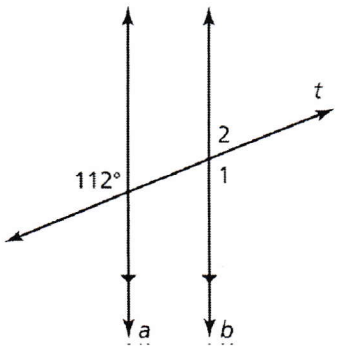
Use the figure to find the relationship between angles. Afterwards find the measure of the numbered angles.

1) 112° and ∠1 are alternate exterior angles.

2) ∠1 and ∠2 are supplementary angles.

3) $m\angle 1 =$ 112°

4) $m\angle 2 =$ 68°



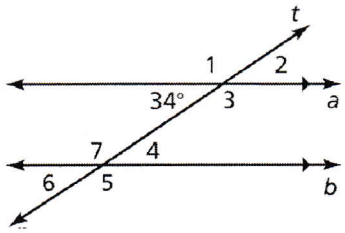
5) 34° and ∠2 are vertical angles.

6) ∠1 and ∠2 are supplementary angles.

7) ∠2 and ∠4 are corresponding angles.

8) ∠3 and ∠7 are alternate interior angles.

9) ∠1 and ∠5 are alternate exterior angles.



10) $m\angle 1 =$ 146°

11) $m\angle 2 =$ 34°

12) $m\angle 3 =$ 146°

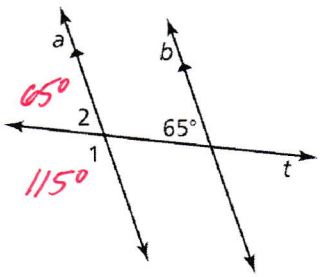
13) $m\angle 4 =$ 34°

14) $m\angle 5 =$ 146°

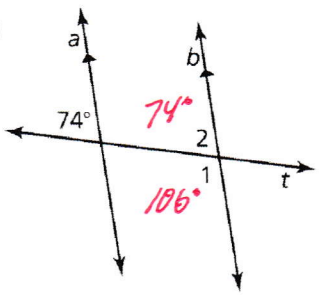
15) $m\angle 6 =$ 34°

Use the figure to find the measures of the numbered angles.

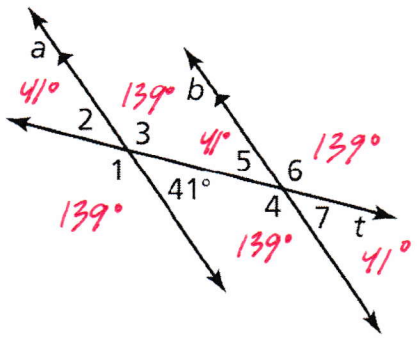
16)



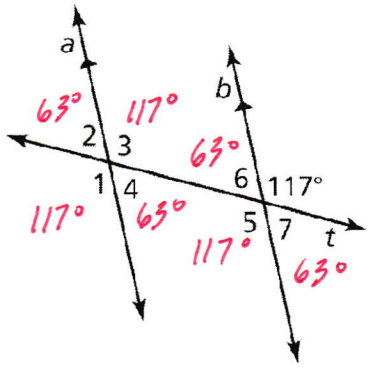
17)



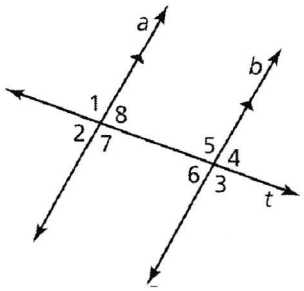
18)



19)



Complete the statement. Explain your reasoning.



20) If the measure of $\angle 1 = 160°$, then the measure of $\angle 5 =$ 160°.

Why? They are corresponding angles

21) If the measure of $\angle 6 = 37°$, then the measure of $\angle 4 =$ 37°.

Why? They are vertical angles

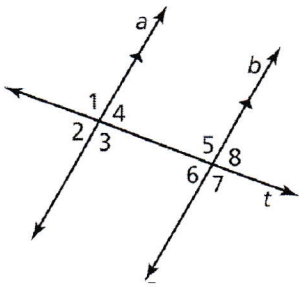
22) If the measure of $\angle 8 = 82°$, then the measure of $\angle 3 =$ 98°.

Why? ∠8 and ∠4 are congruent due to corresponding angles. ∠3 and ∠4 are supplementary. Thus ∠3 and ∠8 add up to 180°

23) If the measure of $\angle 4 = 60°$, then the measure of $\angle 5 =$ 120°.

Why? They are supplementary angles

Correct the following statements about the numbered angles by replacing the underlined words with the correct words.



24) ∠2 is congruent to ∠4. ∠4 is congruent to ∠8.

So, ∠2 is supplementary to ∠8.

congruent

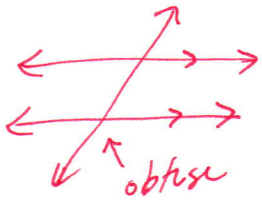
supplementary

25) ∠6 is congruent to ∠3. ∠3 is congruent to ∠1.

So, ∠6 is congruent to ∠1.

supplementary

26) If a transversal intersects two parallel lines, is it possible for all of the angles formed to be acute angles? Explain.



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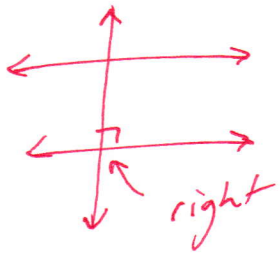

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