

More Solving with Parallel Lines

Ex.1 $\angle A$ and $\angle B$ are vertical angles. $m\angle A = 4x - 15$ and $m\angle B = 2x + 35$. Find the value of x . Then find the measure of $\angle A$ and $\angle B$.

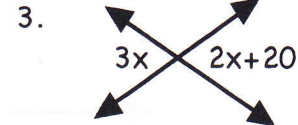
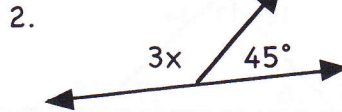
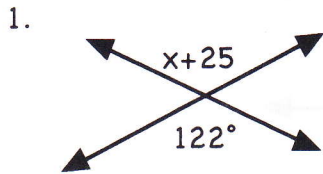
Since $\angle A$ & $\angle B$ are vertical that means they are \cong .

So $4x - 15 = 2x + 35$

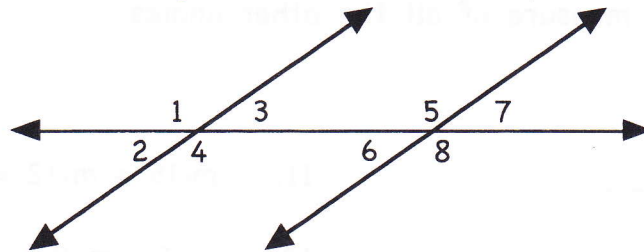
$$\begin{array}{r} 4x - 15 = 2x + 35 \\ -2x \quad -2x \\ \hline 2x - 15 = 35 \\ +15 \quad +15 \\ \hline 2x = 50 \\ \frac{2x}{2} = \frac{50}{2} \\ \hline x = 25 \end{array}$$

$x = 25$
 $\angle A = 85^\circ$
 $\angle B = 85^\circ$

Find the value of x in each figure. Then find the measure of the missing angle(s).



Use the figure below for problems #4 - 7. Find the value of x for each problem. Then give the measure of the angles mentioned in the problem.



4. If $m\angle 3 = 4x + 6$ and $m\angle 4 = 2x$, find the value of x . Then find the $m\angle 3$ and $m\angle 4$.

5. If $m\angle 6 = 2x + 35$ and $m\angle 2 = 85^\circ$, find the value of x . Then find $m\angle 6$.

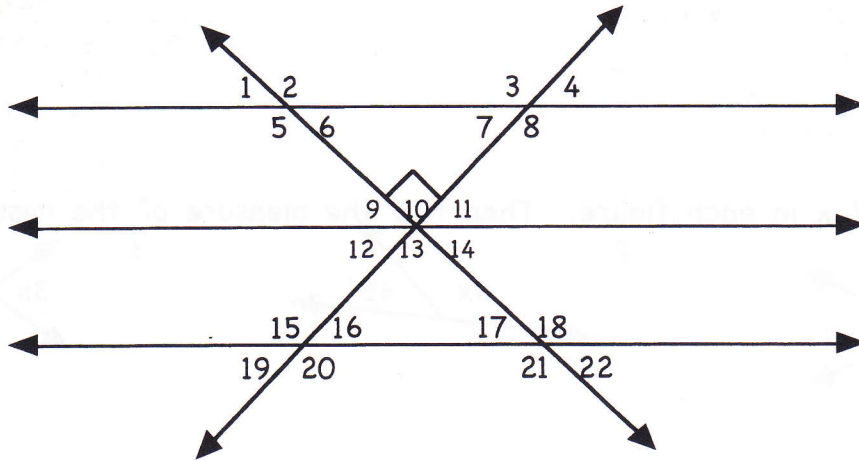
6. If $m\angle 8 = 5x + 10$ and $m\angle 3 = 45^\circ$, find the value of x . Then find $m\angle 8$.

7. If $m\angle 4 = 4x + 50$ and $m\angle 5 = 6x + 10$, find the value of x . Then find $m\angle 4$ & $m\angle 5$.

Use the figure and the given information below to complete #8 - 22.

Given: Three parallel lines cut by two transversals. The transversals are perpendicular to each other.

$$\angle 1 \cong \angle 4$$



8. Name all angles congruent to $\angle 1$.
9. If $m\angle 1 = 45^\circ$, find the measure of all the other angles.
10. $m\angle 2 + m\angle 6 =$ _____
11. $m\angle 15 + m\angle 12 =$ _____
12. $m\angle 14 + m\angle 18 =$ _____
13. $m\angle 7 + m\angle 8 =$ _____
14. $m\angle 10 + m\angle 11 + m\angle 14 =$ _____
15. $m\angle 12 + m\angle 13 + m\angle 14 =$ _____
16. What is the relationship between $\angle 18$ and $\angle 21$?
17. What is the relationship between $\angle 3$ and $\angle 4$?
18. What is the relationship between $\angle 5$ and $\angle 21$?
19. What is the relationship between $\angle 6$ and $\angle 17$?
20. What is the relationship between $\angle 3$ and $\angle 20$?
21. If $m\angle 5 = 115$ and $m\angle 22 = 2x + 5$, find the value of x . Then give $m\angle 22$.
22. If $m\angle 22 = 5x$ and $m\angle 11 = 4x$, find the value of x . Then give $m\angle 22$ and $m\angle 11$.