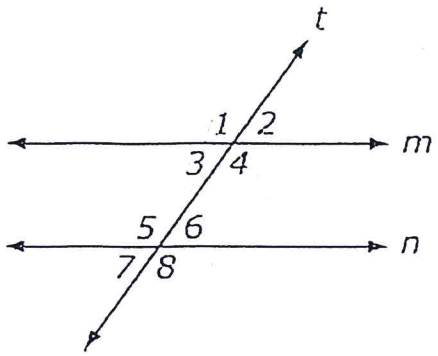
Key

Use the figure below to answer numbers 4 – 6.

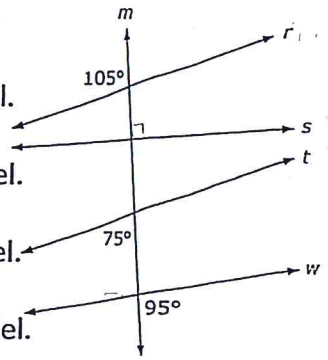


4. Transversal t cuts parallel lines m and n. Which angle is congruent to $\angle 1$?
   (a) $\angle 2$
   (b) $\angle 3$
   (c) $\angle 7$
   (d) $\angle 8$

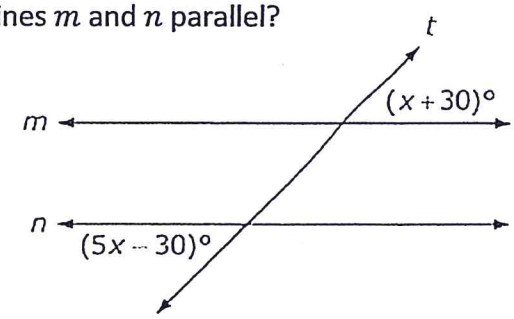
5. Transversal t cuts parallel lines m and n. If the $m\angle 4 = 110°$, what is the $m\angle 7$?
   (a) 20°
   (b) 55°
   (c) 70°
   (d) 110°

6. Which statement must be true about $\angle 3$ and $\angle 6$ in order for line m and n to be parallel?
   (a) Their measures must be equal.
   (b) Their measures must be supplementary.
   (c) Their measure must be complementary.
   (d) The measure of $\angle 3$ must be greater than the measure of $\angle 2$.

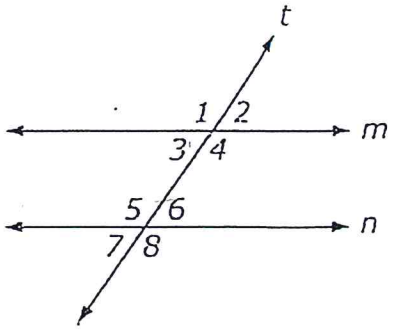
7. Line m intersects lines r, s, t, and w. Which statement must be true?
   (a) Lines r and s are parallel.
   (b) Lines r and t are parallel.
   (c) Lines r and w are parallel.
   (d) Lines s and w are parallel.



8. Line t intersects lines m and n. For what value of x are lines m and n parallel?
   (a) 12
   (b) 15
   (c) 30
   (d) 45

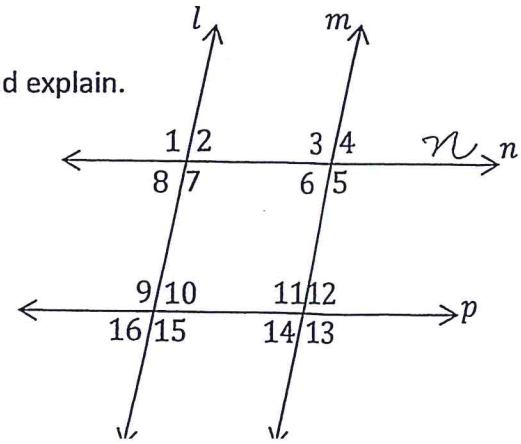


9. Line t intersects line m and n. Which angle has to be supplementary to $\angle 6$ for lines m and n to be parallel?
   (a) $\angle 2$
   (b) $\angle 4$
   (c) $\angle 7$
   (d) $\angle 8$

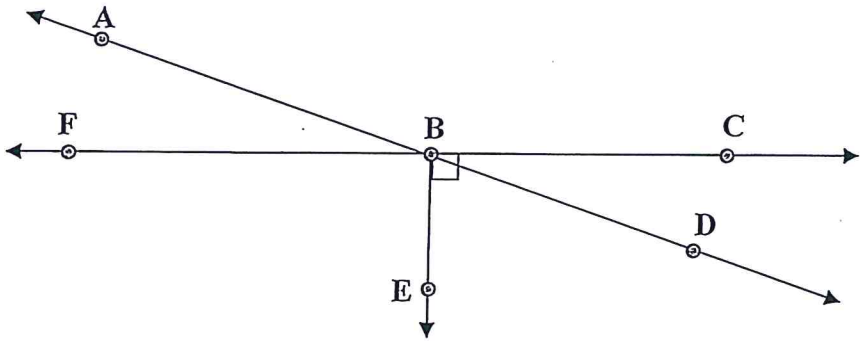


10. Given that $l \parallel m$ and $\angle 4 \cong \angle 10$, are lines n and p parallel? Justify and explain.

$\angle 4 \cong \angle 2$ (CA because $l \parallel m$). Since $\angle 4 \cong \angle 10$, then $\angle 2 \cong \angle 10$. $\angle 2$ & $\angle 10$ are CA, $\cong$, so $n \parallel p$.



For questions 5-8, use the figure pictured below. In the figure, $\overrightarrow{BD}$ bisects $\angle CBE$ and B is the midpoint of $\overline{AD}$.



5. If $m\angle CBD = 57 - 3x$, what is the value of x? $57-3x=45$

A. 45 B. 4 C. 12 D. Cannot be determined

6. If $AD = 5x+8$ and $BD = 3x-10$, what is the length of $\overline{AB}$? $5x+8 = 2(3x-10)$ $28 = x$ $3\cdot 28-10=74$

A. 28 B. 148 C. 74 D. 222

7. Which of the following conclusions CANNOT be made about the figure?

I. $m\angle ABF \cong m\angle EBD$ II. $m\angle FBE = 90°$ III. $\overline{FB} \cong \overline{BC}$

A. Only I B. I and III C. Only III D. II and III

8. What is the $m\angle ABC$?

A. 175° B. 135° C. 120° D. Cannot be determined

9. Which of the following statements will ALWAYS be true?

A. If two non-coplanar lines do not intersect, then they are parallel.
B. Two planes intersect to form a point.
C. The intersection of $\overrightarrow{AB}$ and $\overrightarrow{BA}$ will be $\overline{AB}$.
D. Two adjacent angles form a linear pair of angles