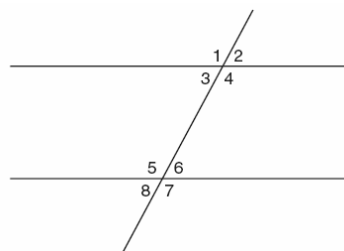


Section 7-3: Angles and Parallel Lines

Alternate Interior Angles and Parallel Lines

1. 010320a, P.I. 8.G.4

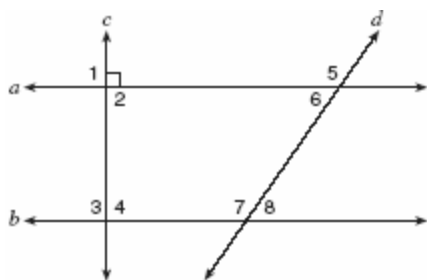
In the accompanying figure, what is one pair of alternate interior angles?



- [A] $\angle 6$ and $\angle 8$ [B] $\angle 4$ and $\angle 5$
[C] $\angle 4$ and $\angle 6$ [D] $\angle 1$ and $\angle 2$

2. 010502a, P.I. 8.G.4

In the accompanying diagram, lines a and b are parallel, and lines c and d are transversals.

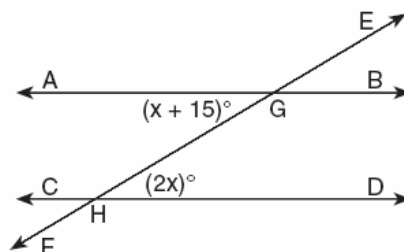


Which angle is congruent to angle 8?

- [A] 4 [B] 5 [C] 3 [D] 6

3. 010402a, P.I. 8.A.12

In the accompanying diagram, parallel lines \overleftrightarrow{AB} and \overleftrightarrow{CD} are intersected by transversal \overleftrightarrow{EF} at points G and H , respectively, $m\angle AGH = x + 15$, and $m\angle GHD = 2x$.

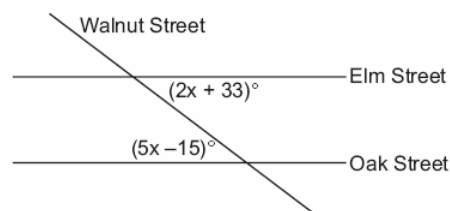


Which equation can be used to find the value of x ?

- [A] $2x = x + 15$ [B] $2x + x + 15 = 90$
[C] $2x + x + 15 = 180$
[D] $2x(x + 15) = 0$

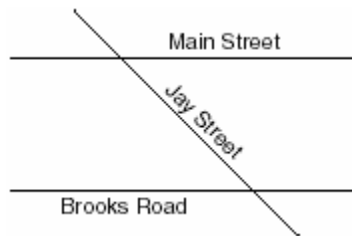
4. 060226a, P.I. 8.A.12

Two parallel roads, Elm Street and Oak Street, are crossed by a third, Walnut Street, as shown in the accompanying diagram. Find the number of degrees in the acute angle formed by the intersection of Walnut Street and Elm Street.



5. 080510a, P.I. 8.A.12

The accompanying diagram shows two parallel streets, Main Street and Brooks Road, intersected by Jay Street. The obtuse angle that Jay Street forms with Brooks Road is three times the measure of the acute angle that Jay Street forms with Main Street.

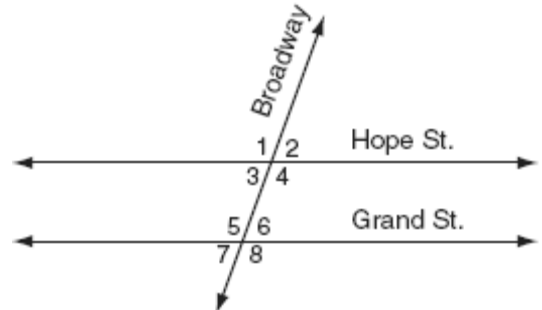


What is the measure of the acute angle formed by Jay Street and Main Street?

- [A] 90° [B] 45° [C] 135° [D] 60°

7. 010702a, P.I. 8.G.5

The accompanying diagram shows two parallel roads, Hope Street and Grand Street, crossed by a transversal road, Broadway.

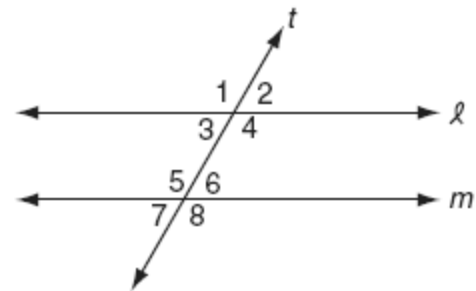


If $m\angle 1 = 110$, what is the measure of $\angle 7$?

- [A] 70° [B] 40° [C] 180° [D] 110°

8. 080613a, P.I. 8.G.4

In the accompanying diagram, line ℓ is parallel to line m , and line t is a transversal.



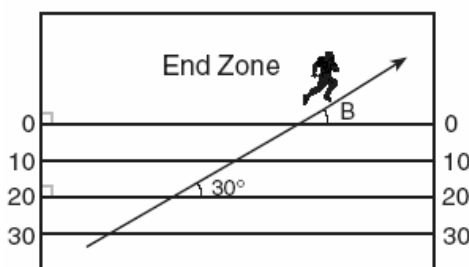
Which must be a true statement?

- [A] $m\angle 1 + m\angle 4 = 180$
[B] $m\angle 1 + m\angle 8 = 180$
[C] $m\angle 3 + m\angle 6 = 180$
[D] $m\angle 2 + m\angle 5 = 180$

Corresponding Angles and Parallel Lines

6. 080421a, P.I. 8.G.5

The accompanying diagram shows a football player crossing the 20-yard line at an angle of 30° and continuing along the same path.

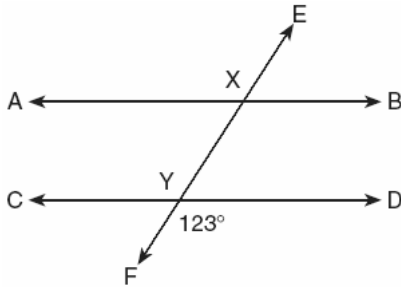


What is the measure of angle B, where the player crosses into the end zone?

- [A] 30° [B] 180° [C] 60° [D] 150°

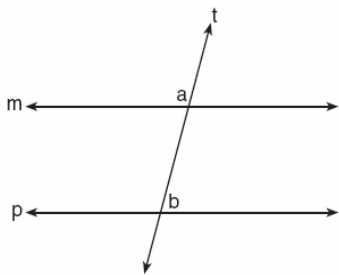
9. 060122a, P.I. 8.G.5

In the accompanying diagram, parallel lines \overleftrightarrow{AB} and \overleftrightarrow{CD} are intersected by transversal \overleftrightarrow{EF} at points X and Y , and $m\angle FYD = 123$. Find $m\angle AXY$.



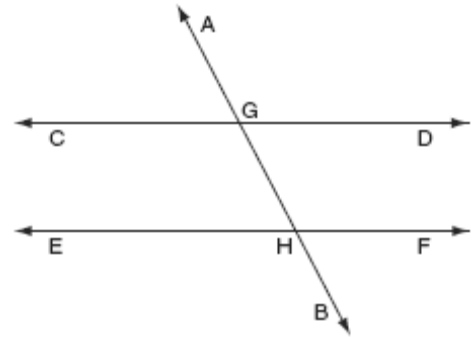
10. 060324a, P.I. 8.A.12

In the accompanying diagram, line m is parallel to line p , line t is a transversal, $m\angle a = 3x + 12$, and $m\angle b = 2x + 13$. Find the value of x .



11. 010639a, P.I. 8.A.12

In the accompanying diagram, $\overleftrightarrow{CD} \parallel \overleftrightarrow{EF}$, \overleftrightarrow{AB} is a transversal, $m\angle DGH = 2x$, and $m\angle FHB = 5x - 51$. Find the measure, in degrees, of $\angle BHE$.



[1] B _____

[2] D _____

[3] A _____

[3] 65, and appropriate work is shown, such as setting the given angles equal to each other and determining the value of x to be 16, and correct substitution is shown.

[2] The given angles are set equal to each other, the correct value of x is determined, but no substitution is shown.

or [2] The given angles are set equal to each other, and substitution is shown, but one computational or substitution error is made.

[1] The given angles are set equal to each other, but no further work is shown.

or [1] An incorrect equation is solved appropriately, such as $5x - 15 + 2x + 33 = 180$.

or [1] 65, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.

[5] B _____

[6] A _____

[7] A _____

[8] D _____

[2] 57° , and appropriate work is shown, such as determining that $m\angle FYD \cong m\angle BXY$ and $\angle AXY$ is supplementary to $\angle BXY$.

or [2] 57° , and a correctly labeled diagram with appropriate angles is shown.

[1] $\angle CYX$ or $\angle BXY$ is determined, but one computational error is made in subtracting to find $m\angle AXY$.

or [1] An angle is determined incorrectly, but an appropriate solution is found.

or [1] 57° , but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[9] incorrect procedure.

[2] 31, and appropriate work is shown, such as $5x + 25 = 180$.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made, such as setting the given angles equal to each other.

or [1] A correct equation is written, but no further correct work is shown.

or [1] 31, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[10] incorrect procedure.

[4] 146, and appropriate work is shown, such as solving the equation $2x = 5x - 51$.

[3] Appropriate work is shown, but one computational error is made.

or [3] The measure of $\angle FHB$ or $\angle DGH$ is found to be 34, and appropriate work is shown, but no further correct work is shown.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as solving the equation $2x + 5x - 51 = 180$.

or [2] The correct equation is solved for $x = 17$, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or [1] The correct equation is written, but no further correct work is shown.

or [1] 146, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[11] incorrect procedure.
