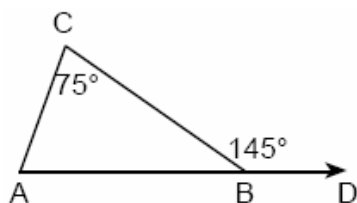


NAME: _____

1. 069912a, P.I. G.G.32

In the accompanying diagram of $\triangle ABC$, \overline{AB} is extended to D , exterior angle CBD measures 145° , and $m\angle C = 75^\circ$.

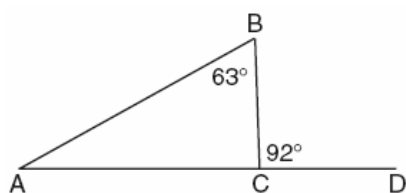


What is $m\angle CAB$?

- [A] 35 [B] 220 [C] 110 [D] 70

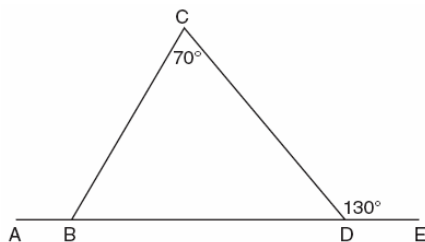
2. 080121a, P.I. G.G.32

Triangle ABC , with side \overline{AC} extended to D , is shown in the accompanying diagram. If $m\angle ABC = 63^\circ$ and $m\angle BCD = 92^\circ$, what is $m\angle BAC$?



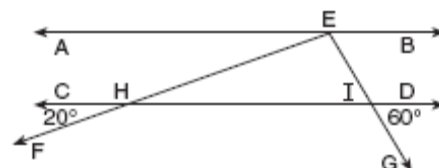
3. 060431a, P.I. G.G.32

In the accompanying diagram of $\triangle BCD$, $m\angle C = 70^\circ$, $m\angle CDE = 130^\circ$, and side \overline{BD} is extended to A and to E . Find $m\angle CBA$.



4. 060606a, P.I. G.G.32

In the accompanying diagram, $\overline{AB} \parallel \overline{CD}$. From point E on \overline{AB} , transversals \overline{EF} and \overline{EG} are drawn, intersecting \overline{CD} at H and I , respectively.

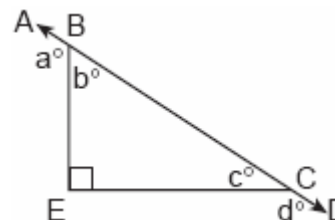


If $m\angle CHF = 20$ and $m\angle DIG = 60$, what is $m\angle HEI$?

- [A] 100 [B] 80 [C] 120 [D] 60

5. 010216a, P.I. G.G.32

In the accompanying diagram, \overline{ABCD} is a straight line, and angle E in triangle BEC is a right angle.



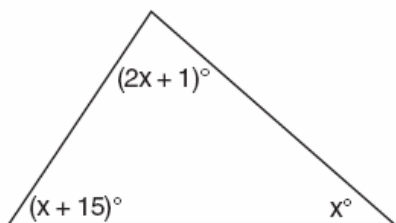
What does $a^\circ + d^\circ$ equal?

- [A] 135° [B] 270°
 [C] 160° [D] 180°

NAME: _____

6. 080216a, P.I. G.G.30

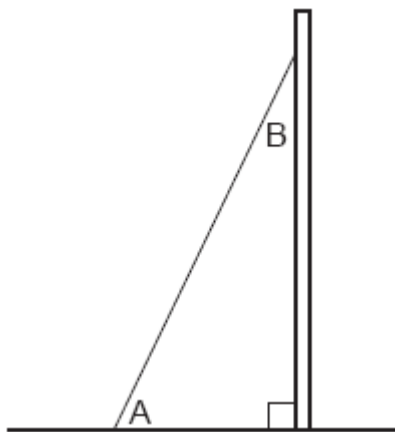
What is the measure of the largest angle in the accompanying triangle?



- [A] 56 [B] 46.5 [C] 41 [D] 83

7. 080837a, P.I. G.G.30

A billboard on level ground is supported by a brace, as shown in the accompanying diagram. The measure of angle A is 15° greater than twice the measure of angle B . Determine the measure of angle A and the measure of angle B .

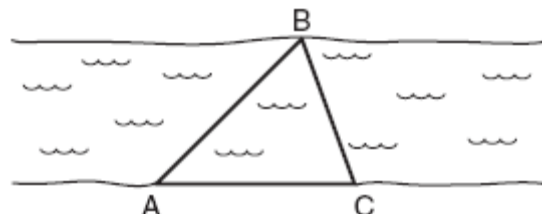


8. 010538a, P.I. G.G.30

In $\triangle ABC$, the measure of $\angle B$ is 21 less than four times the measure of $\angle A$, and the measure of $\angle C$ is 1 more than five times the measure of $\angle A$. Find the measure, in degrees, of *each* angle of $\triangle ABC$.

9. 060629a, P.I. G.G.34

On the banks of a river, surveyors marked locations A , B , and C . The measure of $\angle ACB = 70^\circ$ and the measure of $\angle ABC = 65^\circ$.

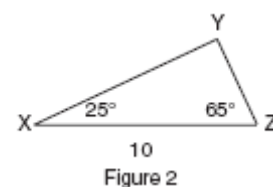
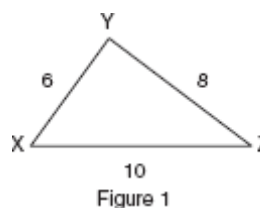


Which expression shows the relationship between the lengths of the sides of this triangle?

- [A] $BC < AC < AB$ [B] $BC < AB < AC$
 [C] $AB < BC < AC$ [D] $AC < AB < BC$

10. 010119a

In which of the accompanying figures are segments XY and YZ perpendicular?



- [A] both figure 1 and figure 2
 [B] neither figure 1 nor figure 2
 [C] figure 1, only [D] figure 2 only

[1] D _____

[2] 29, and appropriate work is shown, such as $92 - 63 = 29$.

[1] The correct application of the exterior angle theorem is shown, but one or more computational errors are made.

or [1] The correct application of supplementary angles and the sum of the angles of a triangle are shown, but one or more computational errors are made.

or [1] $m\angle BCA$ is calculated incorrectly, but the sum of the angles in a triangle is used appropriately.

or [1] 29, 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

[2] incorrect procedure.

[2] 120, and appropriate work is shown, such as $m\angle CDB = 180 - 130 = 50$ and $m\angle CBA = 70 + 50 = 120$ or correctly labeled angles in a diagram.

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

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

or [1] $m\angle CBD = 60$ is found, but no further correct work is shown.

or [1] 120, 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

[3] incorrect procedure.

[4] A _____

[5] B _____

[6] D _____

[3] $m\angle A = 65$ and $m\angle B = 25$, and appropriate work is shown.

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

or [2] Appropriate work is shown to find 65 and 25, but the angles are not labeled or are labeled incorrectly.

or [2] An incorrect expression is written for angle A , but an appropriate equation is solved, and appropriate measures of angle A and angle B are found.

or [2] Appropriate work is shown to find $x = 25$, but no further correct work is shown.

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

or [1] Appropriate work is shown, but one conceptual error is made, such as solving the equation $3x + 15 = 180$ for both the measures of angle A and angle B .

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

or [1] $m\angle A = 65$ and $m\angle B = 25$, but no work is shown.

[0] $m\angle A = 65$ or $m\angle B = 25$, but no work is shown.

or [0] 65 and 25, but no work is shown, and the angles are not labeled or are labeled incorrectly.

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

[7] obviously incorrect procedure.

[4] $m\angle A = 20$, $m\angle B = 59$, and $m\angle C = 101$,
and appropriate work is shown.

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

or [3] A correct equation is written and
solved, and the correct measures for the
angles are found, but they are not labeled or
are labeled incorrectly.

[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.

or [2] A correct equation is written and solved
for x , but the measures of the angles are not
found.

or [2] An incorrect equation of equal
difficulty is solved appropriately, and the
three angles are found.

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

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

or [1] $m\angle A = 20$, $m\angle B = 59$, and
 $m\angle C = 101$, but no work is shown.

[0] $m\angle A = 20$, or $m\angle B = 59$, or
 $m\angle C = 101$, but no work is shown.

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

[8] obviously incorrect procedure. _____

[9] A _____

[10] A _____