

NAME: _____

G.G.30: Investigate, justify, and apply theorems about the sum of the measures of the angles of a triangle

1. 060901ge, P.I. G.G.30

Juliann plans on drawing $\triangle ABC$, where the measure of $\angle A$ can range from 50° to 60° and the measure of $\angle B$ can range from 90° to 100° . Given these conditions, what is the correct range of measures possible for $\angle C$?

- [A] 30° to 50° [B] 80° to 90°
[C] 120° to 130° [D] 20° to 40°

2. 060909ge, P.I. G.G.30

In an equilateral triangle, what is the difference between the sum of the exterior angles and the sum of the interior angles?

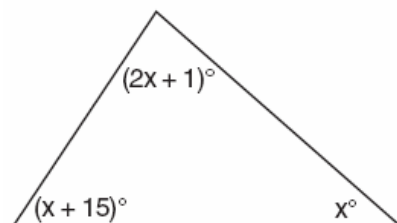
- [A] 180° [B] 90° [C] 60° [D] 120°

3. 080933ge, P.I. G.G.30

The degree measures of the angles of $\triangle ABC$ are represented by x , $3x$, and $5x - 54$. Find the value of x .

4. 080216a, P.I. G.G.30

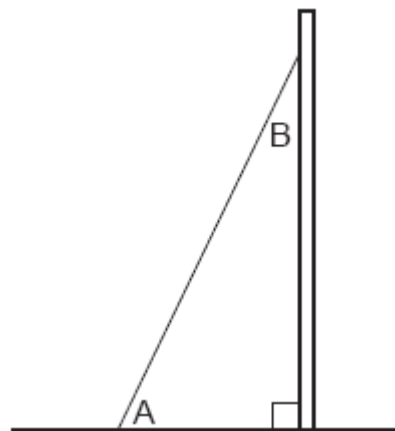
What is the measure of the largest angle in the accompanying triangle?



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

5. 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 .



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6. 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. 010810a, P.I. G.G.30

If the measures, in degrees, of the three angles of a triangle are x , $x + 10$, and $2x - 6$, the triangle must be

- [A] scalene [B] isosceles
[C] equilateral [D] right

7. 010102a, P.I. G.G.30

In right triangle ABC , $m\angle C = 3y - 10$, $m\angle B = y + 40$, and $m\angle A = 90$. What type of right triangle is triangle ABC ?

- [A] scalene [B] isosceles
[C] obtuse [D] equilateral

8. 010722a, P.I. G.G.30

If the measures of the angles of a triangle are represented by $2x$, $3x - 15$, and $7x + 15$, the triangle is

- [A] an equiangular triangle
[B] a right triangle
[C] an isosceles triangle
[D] an acute triangle

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[1] D

[2] A

[2] 26, and appropriate work is shown.

[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] $x + 3x + 5x - 54 = 180$ or an equivalent equation, but no further correct work is shown.

or [1] 26, 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] C

[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

[5] 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

[6] obviously incorrect procedure.

[7] A

[8] C

[9] A