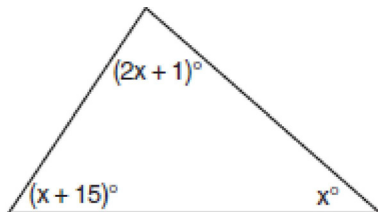


G.G.30: Interior and Exterior Angles of Triangles 2: Investigate, justify, and apply theorems about the sum of the measures of the angles of a triangle

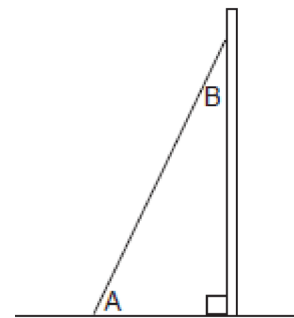
- 1 What is the measure of the largest angle in the accompanying triangle?



- 1) 41
 - 2) 46.5
 - 3) 56
 - 4) 83
- 2 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 ?
- 1) scalene
 - 2) isosceles
 - 3) equilateral
 - 4) obtuse
- 3 If the measures of the angles of a triangle are represented by $2x$, $3x - 15$, and $7x + 15$, the triangle is
- 1) an isosceles triangle
 - 2) a right triangle
 - 3) an acute triangle
 - 4) an equiangular triangle

- 4 If the measures, in degrees, of the three angles of a triangle are x , $x + 10$, and $2x - 6$, the triangle must be
- 1) isosceles
 - 2) equilateral
 - 3) right
 - 4) scalene

- 5 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 .



- 6 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 $\triangle ABC$.

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Answer Section

1 ANS: 4

$$(2x + 1) + (x + 15) + x = 180$$

$$4x + 16 = 180 \quad 2(41) + 1 = 83^\circ$$

$$4x = 164 \quad 41 + 15 = 56^\circ$$

$$x = 41$$

REF: 080216a

2 ANS: 1

$$3y - 10 + y + 40 + 90 = 180$$

$$4y + 120 = 180 \quad C = 3(15) - 10 = 35$$

$$4y = 60 \quad B = (15) + 40 = 55$$

$$y = 15 \quad A = 90$$

REF: 010102a

3 ANS: 1

$$2x + 3x - 15 + 7x + 15 = 180 \quad 2(15) = 30$$

$$12x = 180 \quad 3(15) - 15 = 30$$

$$x = 15 \quad 7(15) + 15 = 120$$

REF: 010722a

4 ANS: 4

$$x + x + 10 + 2x - 6 = 180$$

$$x = 44$$

$$4x + 4 = 180 \quad (44) + 10 = 54$$

$$4x = 176 \quad 2(44) - 6 = 82$$

$$x = 44$$

REF: 010810a

5 ANS:

$$A + B + C = 180$$

$$A + B + C = 180$$

$$m\angle A = 65 \text{ and } m\angle B = 25. \quad (2B + 15) + B + 90 = 180 \quad A + 25 + 90 = 180$$

$$3B = 75$$

$$A = 65$$

$$B = 25$$

REF: 080837a

6 ANS:

$$\begin{array}{rcl}
 m\angle A = x & & x + (4x - 21) + (5x + 1) = 180 \\
 m\angle A = 20, m\angle B = 59, m\angle C = 101. & m\angle B = 4x - 21. & 10x - 20 = 180. \\
 & m\angle C = 5x + 1 & x = 20
 \end{array}$$

$$m\angle A = x = 20^\circ$$

$$m\angle B = 4(20) - 21 = 59^\circ$$

$$m\angle C = 5(20) + 1 = 101^\circ$$

REF: 010538a