1. Is a triangle acute, right, or obtuse if its angle measures are...

    (a) 30°, 80°, and x
    (b) 40°, 50°, and x
    (c) 20°, 60°, and x
    (d) x, $2x$, and $3x$
    (e) x, $x + 2$, and $x + 4$

2. Explain why a triangle cannot have both an obtuse and a right angle.

3. Find the measure of each angle of a triangle whose angles measure $x + 67.25^o$, $2x - 15.8^o$, and $x + 10.15^o$.

4. The measure of one angle of a triangle is twice that of another angle. The third measures 68.4^o. Find the measure of each angle of the triangle.

5. One angle of a triangle has a measure that is 12.8^o more than twice that of a second angle. The third angle has measure 17.4^o less than the second one. Find the measure of each angle.

6. Classify each statement as always true, sometimes true, or never true:

    (a) A right triangle is isosceles.
    (b) A right triangle is obtuse.
    (c) An equilateral triangle is acute.
    (d) A scalene triangle is acute.
    (e) An obtuse triangle is scalene.
    (f) A right triangle is equiangular.

1. (a) acute

   (b) right

   (c) obtuse

   (d) right

   (e) acute

2. A triangle having both an obtuse and a right angle would have an interior angle total of over 180°. That's not possible.

3. $x + 67.25^o + 2x - 15.8^o + x + 10.15^o = 180$ means $4x = 118.4$, so $x = 29.6$. That means the angles measure 96.85^o, 43.4^o, and 39.75^o.

4. $x + 2x + 68.4 = 180$ so $3x = 111.6$ and $x = 37.2$. That means the angles measure 37.2^o, 74.4^o, and 68.4^o.

5. Use x as the measure of the second angle. Then $2x + 12.8 + x + x - 17.4 = 180$ so $4x = 184.6$ and $x = 46.15$. The angles measure 105.1^o, 46.15^o, and 28.75^o.

6. (a) Sometimes true

   (b) Never true

   (c) Always true

   (d) Sometimes true

   (e) Sometimes true

   (f) Never true