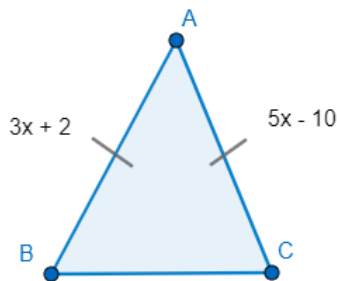**See the answers to the Homework on PAGE 2 below.**

1. A triangle has angles that measure 74^0, 70^0, and $(4x + 4)$. Solve for x.

2. Triangle ABC has angles A = $(x + 56)$, B = 74, and C = $(x + 74)$. Find the measure of angle A.

3. An angle of an equilateral triangle can be expressed as $(9x - 3)$. Find x.

4. The base angles of an isosceles triangle are represented by $(3x - 8)$ and 37^0. Find x.

5. Find x.

A

3x + 2   5x - 10

B   C

6. The two legs of a right triangle measure 30 and 40. Find the length of the hypotenuse.

7. A right triangle has a leg measuring 36 and a hypotenuse of 39. Find the length of the other leg.

8. Find x.

x

142   68
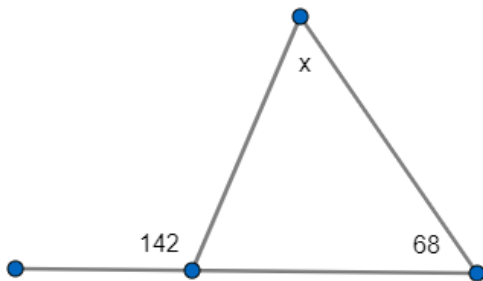
9. An equilateral triangle has one side labeled 16 and another side labeled 2x + 2. Find x.

10. An isosceles triangle has a perimeter of 42 and a base length of 21. Find the length of each leg.

11. An isosceles triangle has a vertex that measures 43 degrees. Find the measure of each base angle.

12. Give an example of three possible side lengths for an equilateral triangle. Why do you know these three numbers work?

13. Can a triangle be both isosceles and right? If no, why?

14. Can a triangle be both equilateral and right? If no, why?

Answers:

1. 8

$$74 + 70 + 4x + 4 = 180$$
$$148 + 4x = 180$$
$$-148 \quad\quad -148$$
$$\frac{4x}{4} = \frac{32}{4}$$

$$\boxed{x = 8}$$

2. A = 44

$$m\angle A + m\angle B + m\angle C = 180$$
$$x + 56 + 74 + x + 74 = 180$$
$$2x + 204 = 180$$
$$-204 \quad\quad -204$$

$$\frac{2x}{2} = \frac{-24}{2}$$
$$x = -12$$

$$m\angle A = x + 56$$
$$-12 + 56$$
$$\boxed{m\angle A = 44}$$

3. x = 7

Equilateral Δ's have angle measures of 60

$$9x - 3 = 60$$
$$+3 \quad +3$$
$$\frac{9x}{9} = \frac{63}{9}$$

$$\boxed{x = 7}$$

4. x = 15

base angles are congruent

$$3x - 8 = 37$$
$$+8 \quad +8$$
$$\frac{3x}{3} = \frac{45}{3}$$

$$\boxed{x = 15}$$

5. x = 6

$$3x + 2 = 5x - 10$$
$$-3x \quad -3x$$
$$2 = 2x - 10$$
$$+10 \quad\quad +10$$
$$\frac{12}{2} = \frac{2x}{2}$$

$$\boxed{x = 6}$$

6. 50
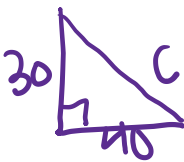
$$30^2 + 40^2 = c^2$$
$$900 + 1600 = c^2$$
$$\sqrt{2500} = \sqrt{c^2}$$

$$\boxed{c = 50}$$

7. 15
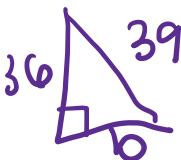
$$36^2 + b^2 = 39^2$$
$$1296 + b^2 = 1521$$
$$-1296 \quad\quad -1296$$
$$\sqrt{b^2} = \sqrt{225}$$

$$\boxed{b = 15}$$

8. 74

$$142 = x + 68$$
$$-68 \quad -68$$

$$\boxed{x = 74}$$

9. x = 7

Sides of equilateral Δ are equal
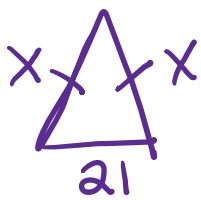
$$16 = 2x + 2$$
$$-2 \quad\quad -2$$
$$\frac{14}{2} = \frac{2x}{2}$$

$$\boxed{x = 7}$$

10. 10.5

$$P = 42 = 2x + 21$$
$$-21 \qquad\qquad -21$$
$$\frac{21}{2} = \frac{2x}{2} \qquad \boxed{x = 10.5}$$

21

11. 68.5

43°
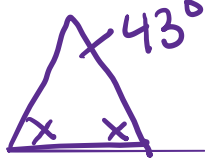
$$43 + x + x = 180$$
$$43 + 2x = 180$$
$$-43 \qquad\qquad -43$$
$$\frac{2x}{2} = \frac{137}{2} \qquad \boxed{x = 68.5}$$

12. All 3 sides need to be the same. All 3 sides of an equilateral triangle are the same length.

13. yes

14. no. All of the angles in an equilateral triangle measure 60 degrees.