

Key

Geometry Review for Unit 4 Quiz 2

1. Define and draw a picture of each. Be able to identify from a definition or a picture for tomorrow's quiz

a. Scalene Triangle $N\circ = \text{sides}$



b. Isosceles Triangle at least 2 sides \cong



c. Equilateral Triangle all 3 sides \cong



d. Altitude a segment \perp to a side of a Δ .



e. Median a segment from a vertex of a Δ to the midpoint of the opposite side



f. Perpendicular bisector a segment perpendicular to a side of a Δ , through its midpoint



g. Angle bisector bisects an angle of a Δ



2. The perimeter of ΔABC is 72. $AB = 14x - 4$, $BC = 12x$, $AC = 11x + 2$. By solving for x , determine whether ΔABC is scalene, isosceles or equilateral.

$$14x - 4 + 12x + 11x + 2 = 72$$

$$37x - 2 = 72$$

$$37x = 74$$

$$x = 2$$

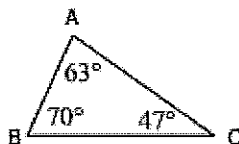
$$AB = 14(2) - 4 = 24$$

$$BC = 12(2) = 24$$

$$AC = 11(2) + 2 = 24$$

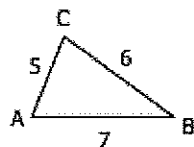
equilateral

3. Order the sides from smallest to largest.



$\overline{AB}, \overline{BC}, \overline{AC}$

4. Order the angles from smallest to largest



$\angle B, \angle A, \angle C$

5. Determine whether a triangle can exist with the given sides. Explain

a. 6, 9, 16

b. 6, 9, 10

c. 6, 9, 15

$$6 + 9 = 15$$

$$15 \neq 16$$

So NO

$$6 + 9 = 15$$

$$15 > 10$$

So YES

$$6 + 9 = 15$$

$$15 \neq 15$$

So NO

6. Find the value of x and list the sides in order from smallest to largest if the angles have the following measures:

$$m\angle A = (9x - 4)^\circ, m\angle B = (4x - 16)^\circ, \text{ and } m\angle C = (68 - 2x)^\circ.$$

$$9x - 4 + 4x - 16 + 68 - 2x = 180$$

$$11x + 48 = 180$$

$$11x = 132$$

$$x = 12$$



$$\begin{aligned} \angle A &= 9(12) - 4 = 104^\circ \\ \angle B &= 4(12) - 16 = 32^\circ \\ \angle C &= 68 - 2(12) = 44^\circ \end{aligned}$$

smallest side \overline{AC}
middle side \overline{AB}
longest side \overline{BC}

7. The vertex angle of an isosceles triangle is 40 degrees. Find the measure of each angle in the triangle.

$$\frac{180 - 40}{2} = \frac{140}{2} = 70$$

$$40^\circ, 70^\circ, 70^\circ$$

8. The base angle of an isosceles triangle is 50 degrees. Find the measure of each angle in the triangle.

$$180 - 50 - 50 = 80^\circ$$

$$50^\circ, 50^\circ, 80^\circ$$

9.

Find the measure of each angle.

6. $m\angle BCA = 60^\circ$

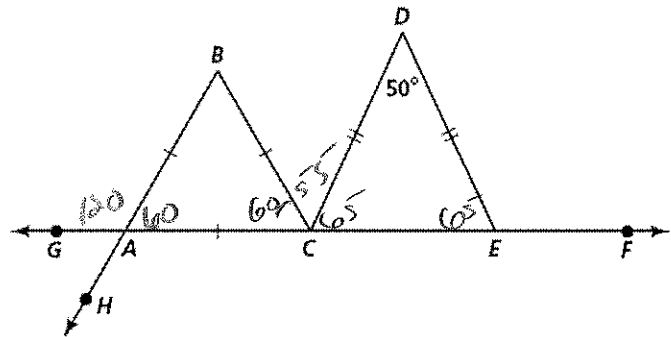
7. $m\angle DCE = \frac{180 - 50}{2} = \frac{130}{2} = 65^\circ$

8. $m\angle DEF = 65^\circ$

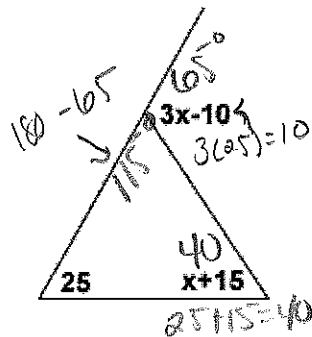
9. $m\angle BCD = 180 - 60 - 65 = 55^\circ$

10. $m\angle BAG = 120 = 180 - 60^\circ$

11. $m\angle GAH = 60^\circ$



10. Find the value of x . Then find the measure of the 3 unknown angles in the figure. Label them on the figure.



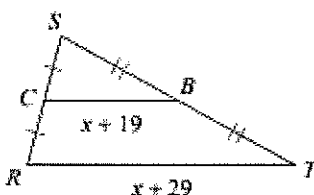
$$25 + x + 15 = 3x - 10$$

$$40 + x = 3x - 10$$

$$50 = 2x$$

$$25 = x$$

11. Find the value of x



$$2(x+19) = x+29$$

$$2x+38 = x+29$$

$$x = -9$$