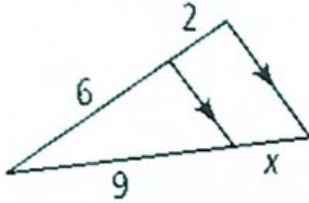


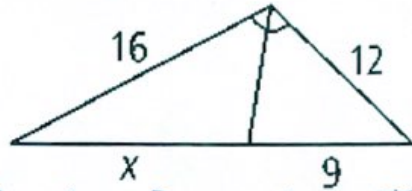
Triangle Proportionality and Angle Bisector Theorem

Conceptual Understanding:

1. Solve for x . Justify your answer.Triangle Proportionality
Theorem

$$\frac{6}{2} = \frac{9}{x} \quad 6x = 18$$

$$\boxed{x = 3}$$

2. Solve for x . Justify your answer.

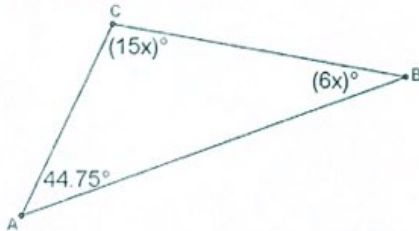
Angle Bisector Theorem

$$\frac{16}{x} = \frac{12}{9}$$

$$144 = 12x$$

$$\boxed{x = 12}$$

Review Problems:

3. Find $m\angle B$, and $m\angle C$.

$$15x + 6x + 44.75 = 180$$

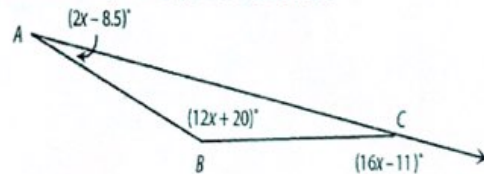
$$\quad -44.75 \quad -44.75$$

$$\frac{21x}{21} = \frac{135.25}{21}$$

$$x = 6.44$$

$$m\angle B = 6(6.44) = \boxed{38.64^\circ}$$

$$m\angle C = 15(6.44) = \boxed{96.6^\circ}$$

4. Find $m\angle A$, $m\angle B$, and $m\angle ACB$.

$$2x - 8.5 + 12x + 20 = 16x - 11$$

$$14x + 11.5 = 16x - 11$$

$$-14x \quad +11 \quad -14x \quad +11$$

$$\frac{22.5}{2} = \frac{2x}{2}$$

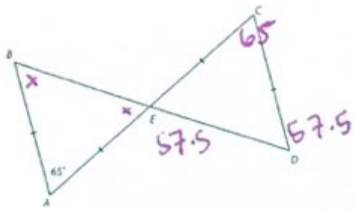
$$\boxed{x = 11.25}$$

$$m\angle A = 2(11.25) - 8.5 = 14^\circ$$

$$m\angle B = 12(11.25) + 20 = 155^\circ$$

$$m\angle C = 180 - 14 - 155 = 11^\circ$$

5. Find $m\angle B$, $m\angle C$, and $m\angle D$.



$$65 + x + x = 180$$

$$2x = 115$$

$$x = 57.5$$

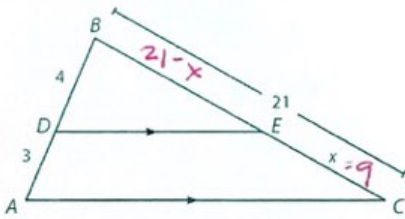
$$\angle B = 57.5$$

$$\angle C = 65$$

$$\angle D = 57.5$$

Extended Understanding:

7. Find the length of \overline{EC} .



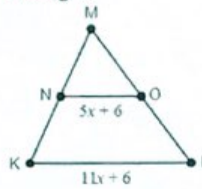
$$\frac{4}{3} = \frac{21-x}{x}$$

$$4x = 63 - 3x + 3x$$

$$\frac{7x}{7} = \frac{63}{7}$$

$$x = 9$$

6. Solve for x given \overline{NO} is a midsegment of the triangle.



$$2(5x+6) = 11x+6$$

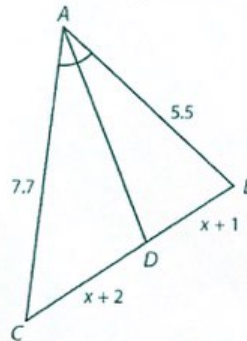
$$10x+12 = 11x+6$$

$$-11x - 12 = -11x - 12$$

$$-x = -6$$

$$x = 6$$

8. Find the lengths of \overline{CD} and \overline{BD} .



$$\frac{7.7}{x+2} = \frac{5.5}{x+1}$$

$$\overline{CD} = 3.5$$

$$\overline{BD} = 2.5$$

$$7.7x + 7.7 = 5.5x + 11$$

$$-5.5x \quad -5.5x$$

$$2.2x + 7.7 = 11$$

$$-7.7 \quad -7.7$$

$$\frac{2.2x}{2.2} = \frac{3.3}{2.2}$$

$$x = 1.5$$