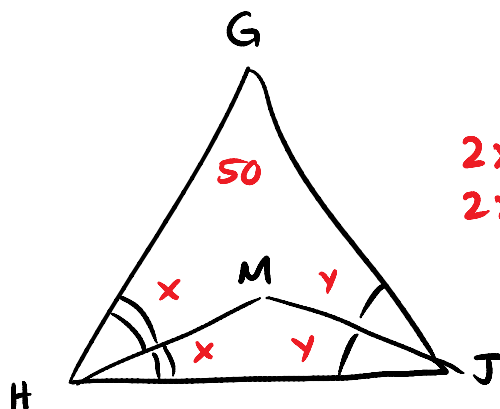


#4 If $m\angle G = 50$
Find $m\angle M$



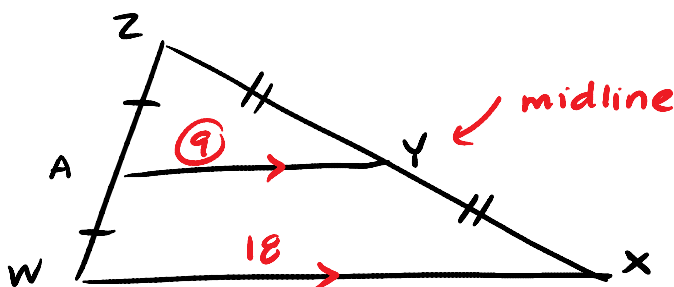
$$\begin{aligned} 2x + 2y + 50 &= 180 \\ 2x + 2y &= 130 \\ x + y &= 65 \end{aligned}$$

In $\triangle H M J$:

$$\begin{aligned} x + y + m\angle M &= 180 \\ 65 + m\angle M &= 180 \end{aligned}$$

$$\boxed{m\angle M = 115^\circ}$$

#7 If $WX = 18$
Find AY

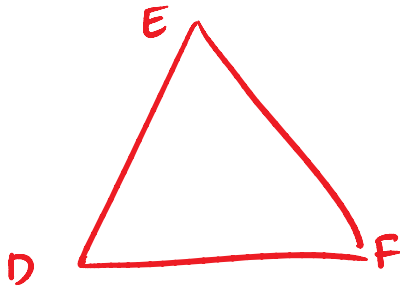


#9

Always, Sometimes, Never

- The acute angles of a right triangle are complementary **A**
- The supplement of one of the angles of triangle is equal in measure to the sum of the other two angles of the triangle **A**
- A triangle contains two obtuse angles **N**
- If one of the angles of an isosceles triangle is 60 degrees, the triangle is equilateral **A**
- If the sides of one triangle are doubled to form another triangle, each angle of the second triangle is twice as large as the corresponding angle of the first triangle. **N**

#12 In $\triangle DEF$, the sum of the measures of $\angle D$ and $\angle E$ is 110. The sum of measures $\angle E$ and $\angle F$ is 150. Find the sum of the measures of $\angle D$ and $\angle F$.



$$\angle D + \angle E + \angle F = 180$$

$$110 + \angle F = 180$$

$$\boxed{\angle F = 70}$$

$$\angle D + 150 = 180$$

$$\boxed{\angle D = 30}$$

$$\angle D + \angle F = 30 + 70 = \boxed{100}$$

#15 The measures of two angles of a triangle are in the ratio of 2:3. If the third angle is 4 degrees larger than the larger of the other two angles, find the measure of the exterior angle at the third vertex.

Small: $2x$ (44)

med: $3x$ (66)

Large: $3x + 4$ (70)

$$2x + 3x + 3x + 4 = 180$$

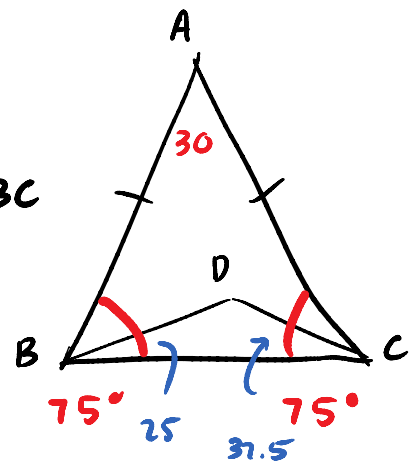
$$8x + 4 = 180$$

$$8x = 176$$

$$x = 22$$

↑
ext $\angle = \boxed{110^\circ}$

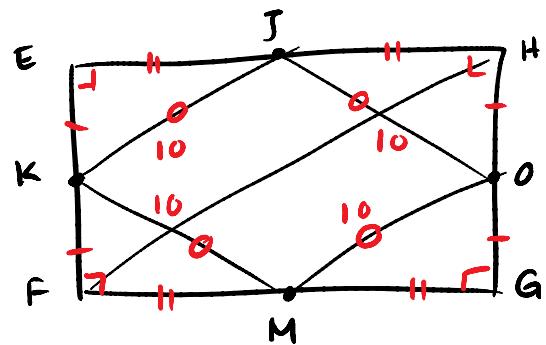
#16 Given: $\angle A = 30^\circ$, $\overline{AB} \cong \overline{AC}$
 \overline{CD} bisects $\angle ACB$
 \overline{BD} is one of the trisectors of $\angle ABC$
 Find: $\angle D$



$$\angle D = 180 - 25 - 37.5 = \boxed{117.5^\circ}$$

$$\angle D = 180 - 50 - 37.5 = \boxed{92.5^\circ}$$

#17 Given: EFGH is a rectangle
 $FH = 20$
 J, K, M, O are midpts



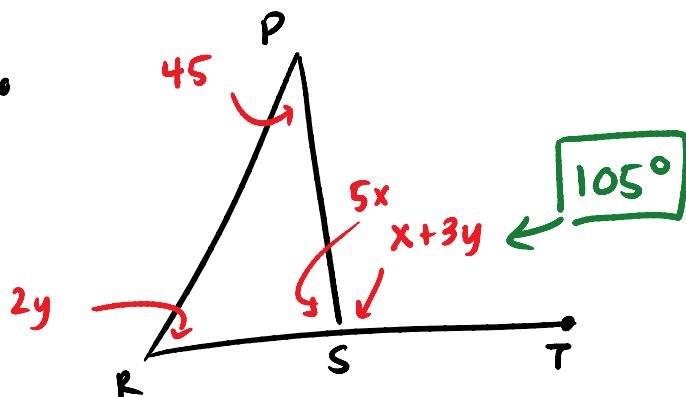
a. What is the perimeter of JKMO

40

b. What is the most descriptive name for JKMO
RHOMBUS

#18 Given: $\angle PST = (x+3y)^\circ$
 $\angle P = 45^\circ$ $\angle R = (2y)^\circ$
 $\angle PSR = (5x)^\circ$

Find: $m\angle PST$



$$5x + x + 3y = 180$$

$$6x + 3y = 180$$

$$5x + 2y + 45 = 180$$

$$5x + 2y = 135$$

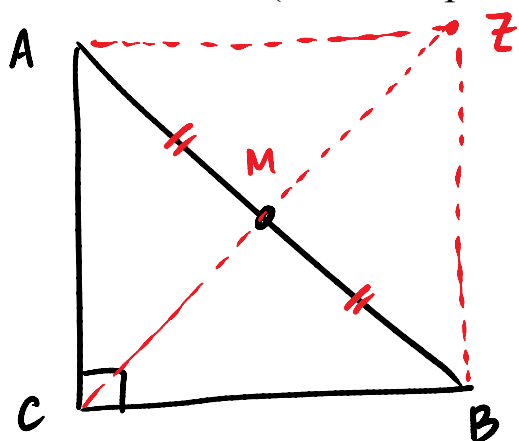
$$\begin{array}{rcl} -2(6x + 3y = 180) & \Rightarrow & -12x - 6y = -360 \\ 3(5x + 2y = 135) & \Rightarrow & 15x + 6y = 405 \end{array}$$

$$3x = 45$$

$$\begin{array}{l} x = 15 \\ y = 30 \end{array}$$

105°

#19 Prove that the midpoint of the hypotenuse of a right triangle is equidistant from all three vertices (Hint: see proof of midline theorem)



Given: $\triangle ACB$ is a rt. \triangle
 $\angle C$ is a right \angle
 M is midpt of \overline{AB}

Prove: $M = \text{dist from } A, B, C.$

- Extend \overline{CM} to Z so that $\overline{CM} \cong \overline{MZ}$
- So $ACBZ$ is a \square (diagonals bisect each other)

- $ACBZ$ is a rect (\square w/ 1 right \angle)
- Diagonals of a rectangle are \cong and bisect each other

$$\text{so: } \overline{AM} \cong \overline{MB} \cong \overline{CM}$$

Paragraph
Proof