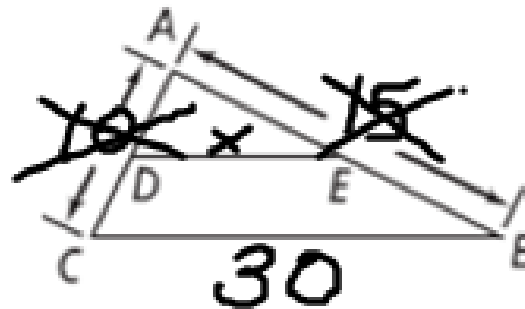


Unit 5 Review

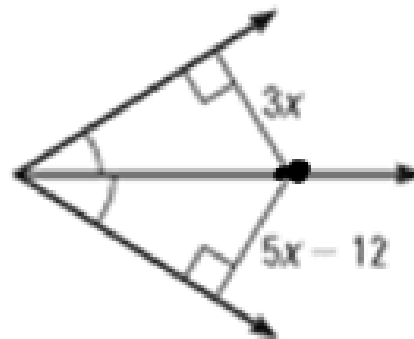
1. \overline{DE} is a midsegment of $\triangle ABC$.



In millimeters, what is DE?

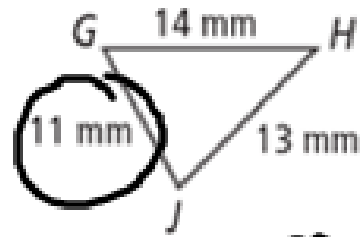
15

2. Find the value of x .



$$\begin{aligned} 3x &= 5x - 12 \\ -5x &- 5x \\ \hline -2x &= -12 \\ x &= 6 \end{aligned}$$

3. Put the angles in order from least to greatest.



$$m\angle H < m\angle G < m\angle J$$

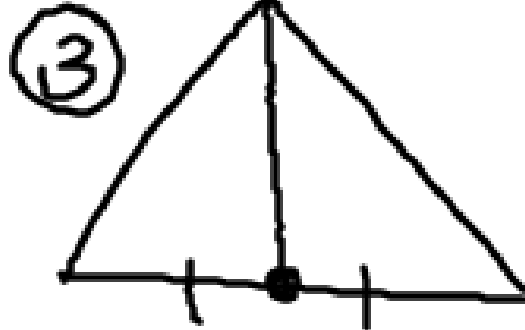
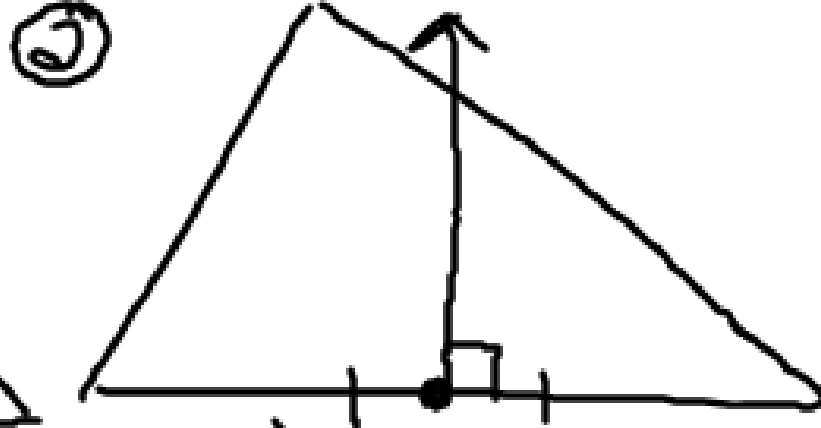
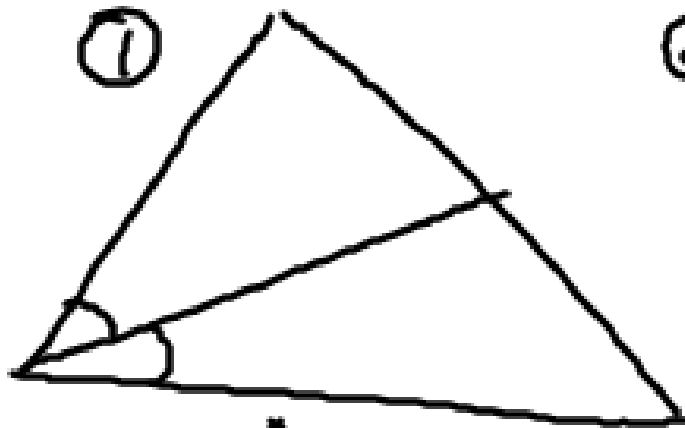
①

②

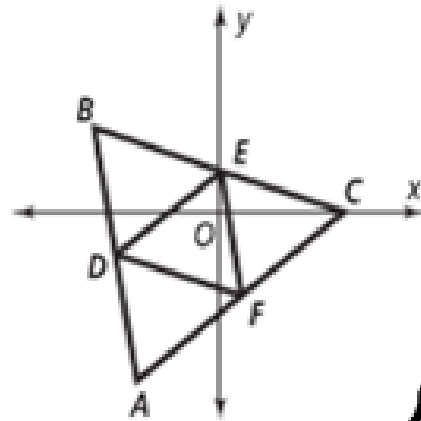
③

④

4. Draw an angle bisector, perpendicular bisector, median and an altitude in a triangle.



5. In the figure below, $\triangle ABC$ has vertices $A(-3, -5)$, $B(-4, 3)$, and $C(4, 1)$. D is the midpoint of \overline{AB} , E is the midpoint of \overline{BC} , and F is the midpoint of \overline{AC} .



$$BC = \frac{-4 + 4}{2}, \frac{3 + 1}{2}$$

$$= (0, 2)$$

$$AC = \frac{-3 + 4}{2}, \frac{-5 + 1}{2}$$

$$= \left(\frac{1}{2}, -2\right)$$

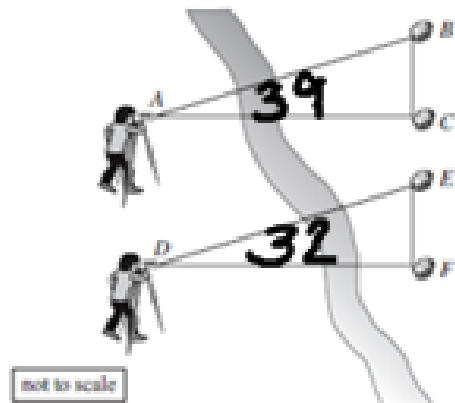
What are the coordinates of the vertices of $\triangle DEF$?

$$AB = \frac{-3 + (-4)}{2}$$

$$\frac{-5 + 3}{2}$$

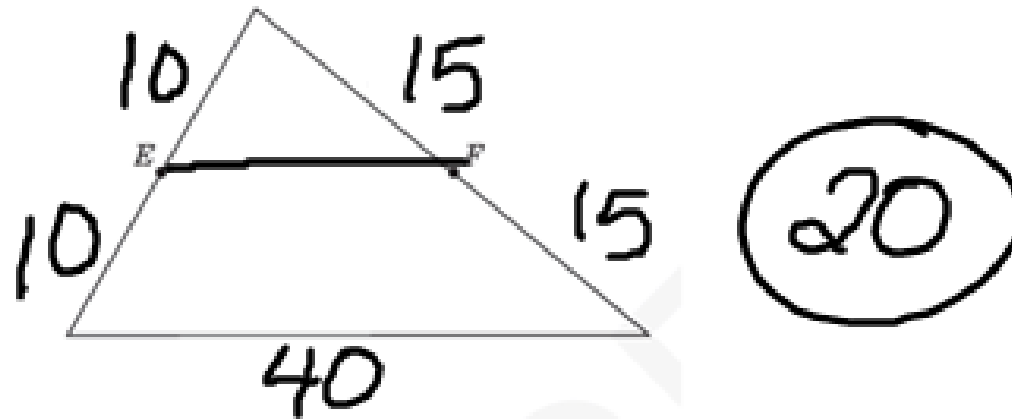
$$= (-3.5, -1)$$

A surveyor took some measurements across a river, as shown below. In the diagram, $AC = DF$ and $AB = DE$.



$$BC > EF$$

7. How long is \overline{EF} ?



8. Rebecca is designing a backpack and needs to determine the length of the adjustable strap that connects the shoulder strap to the backpack. The height of the backpack is 20.5 inches, and the shoulder strap is 14 inches. What is the range that the adjustable strap could be?

Shoulder Strap

14

Height

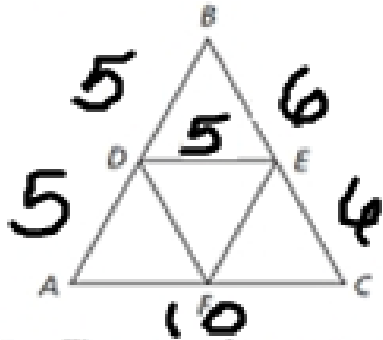
20.5

$$20.5 + 14 = 34.5$$

$$20.5 - 14 = 6.5$$

$$6.5 < x < 34.5$$

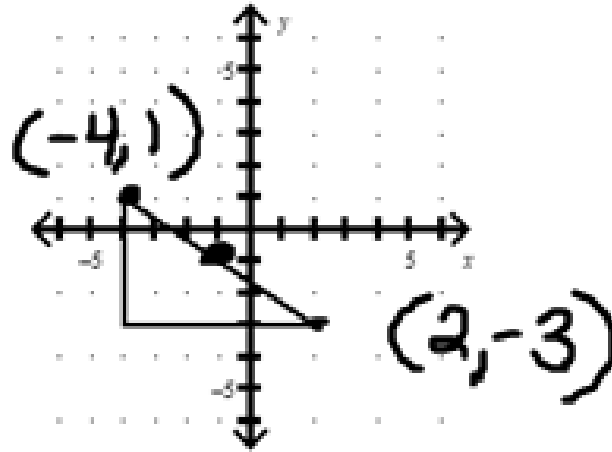
9. What is the perimeter of $\triangle ABC$ if D is the midpoint of \overline{AB} , E is the midpoint of \overline{BC} , and F is the midpoint of \overline{AC} ?



Note: Figure not drawn to scale.

$$10 + 12 + 10 = 32$$

10. For the triangle, find the coordinates of the point of concurrency of the perpendicular bisector of the sides.

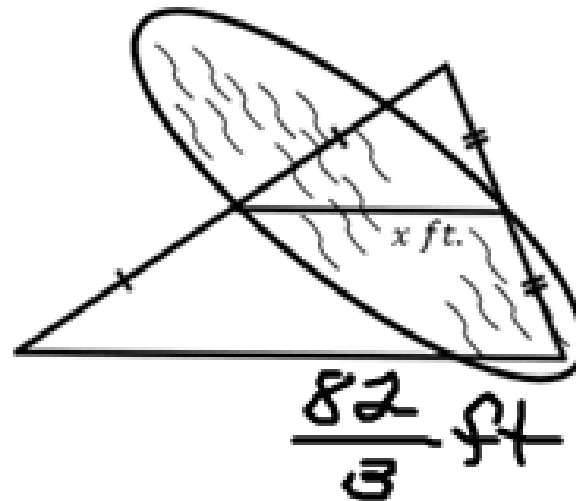


$$\begin{aligned} & \frac{-4+2}{2}, \frac{1+(-3)}{2} \\ & \left(\frac{-2}{2}, \frac{-2}{2} \right) \\ & (-1, -1) \end{aligned}$$

11. What is the measure of the interior angle of a ^{Reg}nonagon?

$$\frac{180(9-2)}{9} = 140^\circ$$

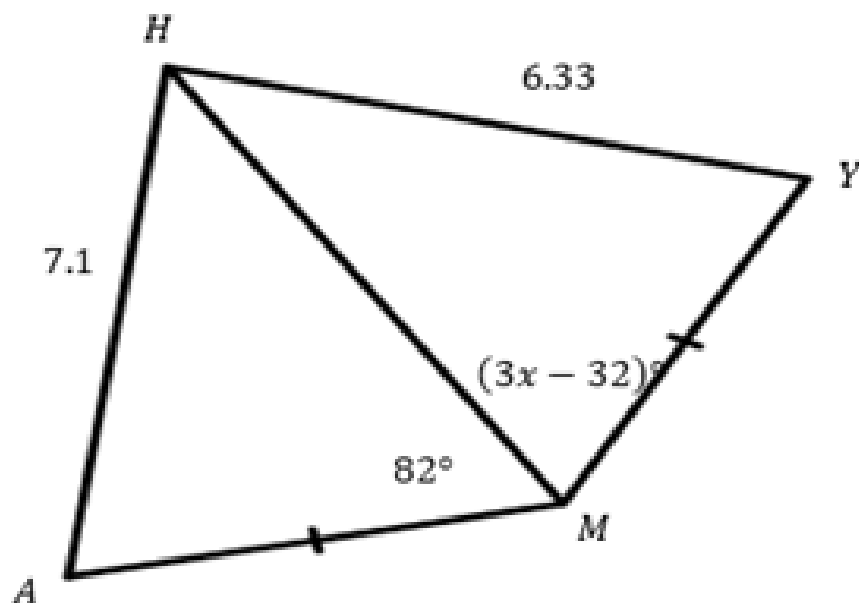
12. Determine the length of x in the figure below.



$$82 \div 3 \div 2 = 13.67$$

13. Determine the range of possible values of x .

$$\begin{array}{r} 82 > 3x - 32 \\ +32 \quad \quad +32 \\ \hline 114 > 3x \\ 3 \quad \quad 3 \\ \hline 38 > x \end{array}$$



$$10.67 < x < 38$$

$$\begin{array}{r} 3x - 32 > 0 \\ +32 \quad +32 \\ \hline 3x > 32 \\ 3 \quad \quad 3 \\ \hline x > 10.67 \end{array}$$