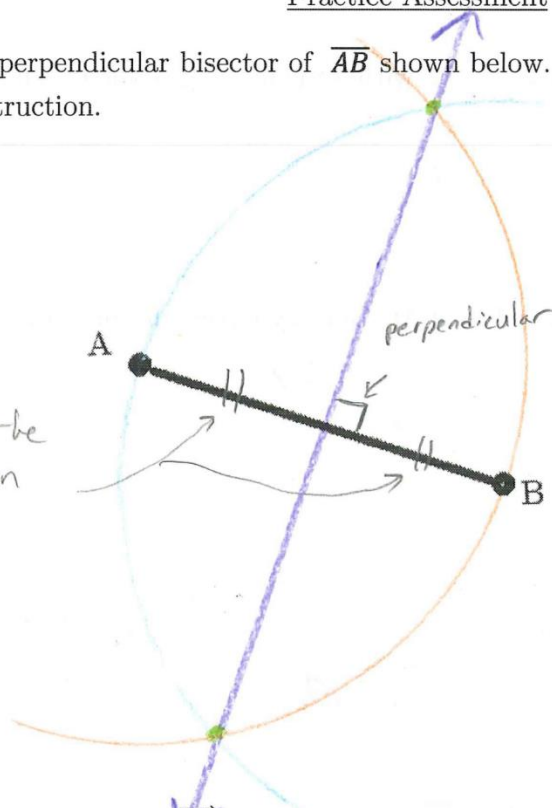


1. Construct the perpendicular bisector of \overline{AB} shown below. Leave all circular arcs/markings as evidence of proper construction.

Shows the bisection



step 1: Needle @ A, Pencil @ B, mark circular arc.

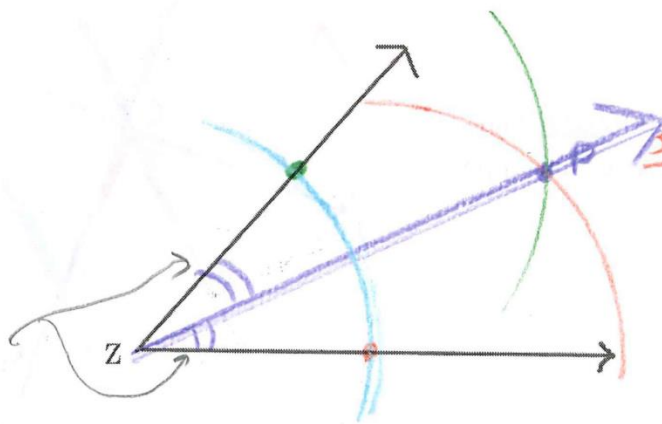
step 2: Needle @ B, pencil @ A, mark circular arc.

step 3: mark intersection points

step 4: construct line from step 3's points

2. Construct the angle bisector \overline{ZP} for $\angle Z$ below. Leave all circular arcs/markings as evidence of proper construction.

Shows bisection



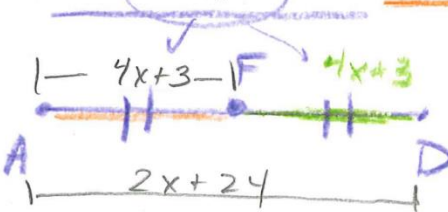
step 1: Needle at Z, mark arbitrary arc that crosses both rays.

step 2: Needle at intersection, mark arbitrary arc in the interior of angle.

step 3: Needle at intersection SAME COMPASS WIDTH AS STEP 2 mark an arc, crossing step 2's.

step 4: mark intersection, create \overline{ZP} .

3. F is the midpoint of AD. $AF=4x+3$, $AD=2x+24$. What is the length of AD?



Since F is the midpoint, $\overline{AF} \cong \overline{FD}$.

Since $AF = 4x+3$, FD is ALSO $= 4x+3$.

By the SEGMENT ADDITION POSTULATE:

$$4x+3 + 4x+3 = 2x+24$$

$$\begin{array}{r} 8x+6 \\ -2x-6 \\ \hline 6x=18 \end{array}$$

$$6x = 18 \rightarrow x = 3$$

like combine terms

Plug into AD

$$2(3) + 24$$

$$6 + 24$$

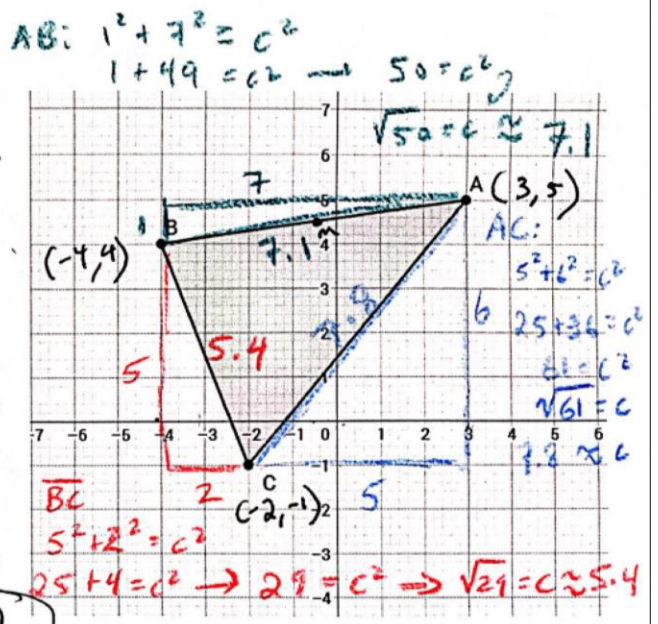
$$30$$

"Mid point" implies that $\overline{AF} \cong \overline{FD}$

GPE-B7a

4. Find the perimeter of $\triangle ABC$ to the nearest tenth of a unit. *use distance or pythag. (No need for Both!)*

$$7.8 + 5.4 + 7.1 = 20.3 \text{ units}$$



5. Suppose point M (not shown) is the exact midpoint of \overline{BA} in the diagram. What are the coordinates of point M ?

AVERAGE

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

(Avg x, Avg y)

$$A: (3, 5) \quad B: (-4, 4) \rightarrow \left(\frac{3 + (-4)}{2}, \frac{5 + 4}{2} \right) = \left(-\frac{1}{2}, \frac{9}{2} \right)$$

6. (No diagram) Suppose point Q has coordinates $(-4.3, -2.1)$ and point R has coordinates $(2.5, 6.7)$. Find the length of segment \overline{RQ} .

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(2.5 - (-4.3))^2 + (6.7 - (-2.1))^2} = \sqrt{(-1.8)^2 + (8.8)^2} = \sqrt{3.24 + 77.44} = \sqrt{80.68} \approx 8.98$$

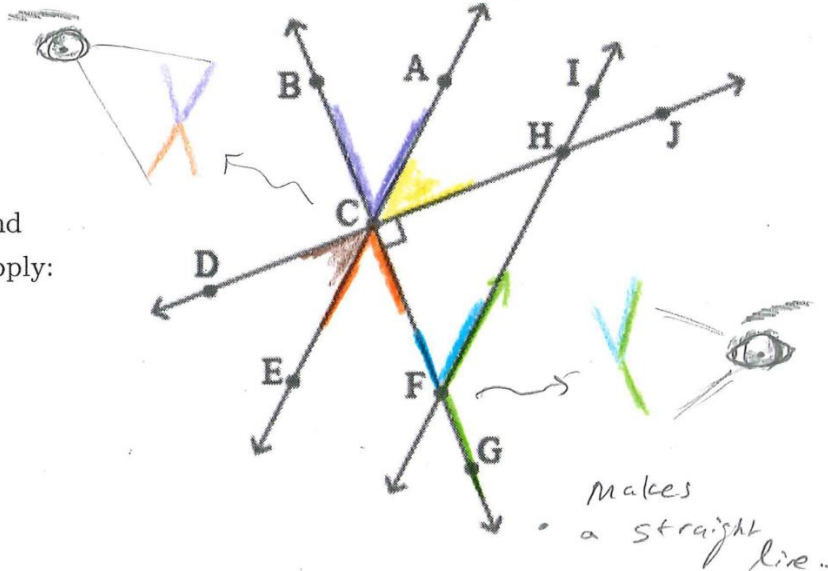
CO-A1c

6. Name the angle which is vertical to $\angle BCA$.

$\angle ECF$
(or $\angle FCE$)

7. Which of the following describe(s) $\angle GFH$ and $\angle CFH$ as an angle pair? Choose ALL that apply:

- complementary angles
- supplementary angles
- vertical angles
- adjacent angles
- linear pair



makes a straight line...
• Attached...
• totals 180°...

8. Name a pair of complementary angles.

[Some] Possible answers

- $\angle BCA$ and $\angle ACH$
- $\angle ECF$ and $\angle DCE$