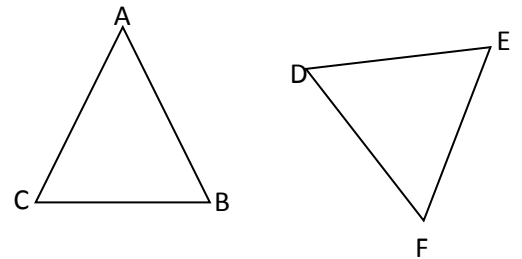


**Part I:** Write the answer of your choice in the space provided. Each question is worth 2 credits. Provide work to justify your choice in the space provided. **A correct answer choice and no work shown will receive only one credit.**

\_\_\_\_\_ 1. In the diagram of  $\triangle ABC$  and  $\triangle DEF$ ,  $\overline{AB} \cong \overline{DE}$ ,  $\angle A \cong \angle D$ , and  $\angle B \cong \angle E$ . Which method can be used to map  $\triangle ABC$  to  $\triangle DEF$ ?

- A.  $T_{\overline{AB}}(r_{\overline{AB}}(\triangle ABC))$
- B.  $R_{A', \angle BDE}(T_{\overline{AD}}(\triangle ABC))$
- C.  $T_{\overline{AD}}(R_{A', \angle BDE}(\triangle ABC))$
- D.  $(R_{A, 90^\circ}(\triangle ABC))$



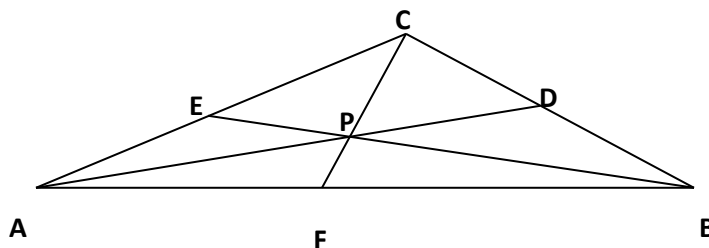
\_\_\_\_\_ 2. What is the equation of a line that passes through the point  $(-2, 5)$  and is perpendicular to the line whose equation is  $2y - 5 = x$ ?

- A.  $y = 2x + 1$
- B.  $y = -2x + 1$
- C.  $y = 2x + 9$
- D.  $y = -2x - 9$

\_\_\_\_\_ 3. **Draw** Quadrilateral  $ABCD$  with  $\overline{AC}$  bisecting  $\overline{BD}$  at  $E$ . Which of the following is true.

- A)  $\overline{AE} \cong \overline{CE}$  B)  $\overline{DE} \cong \overline{BE}$
- C)  $\overline{AC} \cong \overline{DB}$  D)  $\overline{AD} \cong \overline{DC}$

\_\_\_\_\_ 4. In the diagram of  $\triangle ABC$  below, Joe found centroid  $P$  by constructing the three medians. He measured  $CF$  and found it to be 6 inches.



If  $PF = x$ , which equation can be used to find  $x$ ?

- A.  $x + x = 6$
- B.  $2x + x = 6$
- C.  $3x + 2x = 6$
- D.  $x + \frac{2}{3}x = 6$

Work space for justification

\_\_\_\_\_ 5.  $\overline{QS}$  bisects  $\angle PQR$ ,  $m\angle PQR = (4x + 2)$ , and  $m\angle SQR = (3x - 6)$ .  
What is the measure of  $\angle PQS$ ?

- A.  $8^\circ$       B.  $15^\circ$       C.  $7^\circ$       D.  $30^\circ$

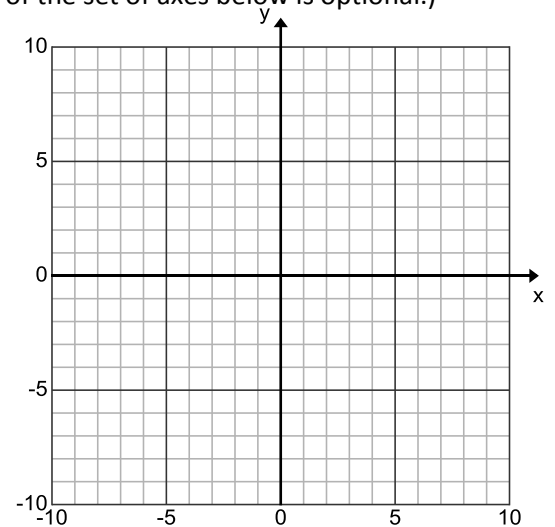
\_\_\_\_\_ 6. In  $\triangle ABC$ ,  $m\angle A = x$ ,  $m\angle B = 2x + 2$ , and  $m\angle C = 3x + 4$ .  
What is the measure of the largest angle?

- A.  $180^\circ$       B.  $29^\circ$       C.  $91^\circ$       D.  $60^\circ$

**Part III. Each question in this section is worth 4 points. A correct answer with no work shown will receive only 1 credit. Show all work including formulas, drawings, substitutions, tables, etc.**

7. In rhombus  $MATH$ , the coordinates of the endpoints of the diagonal  $\overline{MT}$  are  $M(0, -1)$  and  $T(4, 6)$ .

a) Write the equation of the line that contains diagonal  $\overline{AH}$ . (Use of the set of axes below is optional.)



b) Using the given information, explain how you know that your line contains the diagonal  $\overline{AH}$ .