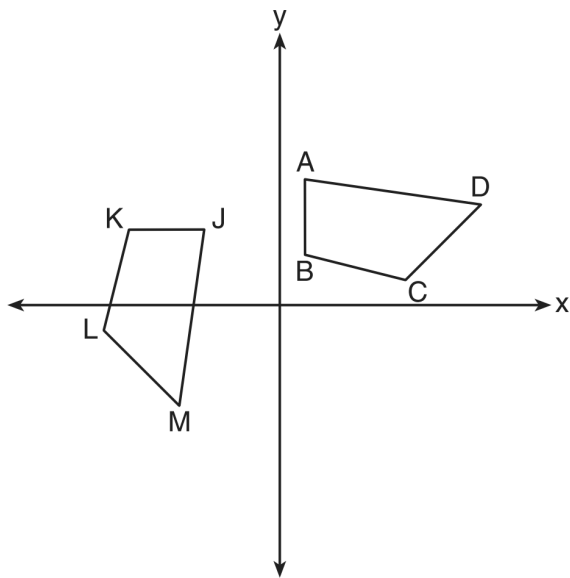


Quarter 1 Review

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. In the diagram below, a sequence of rigid motions maps  $ABCD$  onto  $JKLM$ .



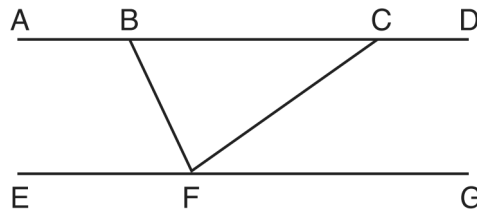
If  $m\angle A = 82^\circ$ ,  $m\angle B = 104^\circ$ , and  $m\angle L = 121^\circ$ , the measure of  $\angle M$  is

- A.  $53^\circ$     B.  $82^\circ$     C.  $104^\circ$     D.  $121^\circ$

2. Which regular polygon has a minimum rotation of  $45^\circ$  to carry the polygon onto itself?

- A. octagon                      B. decagon  
C. hexagon                      D. pentagon

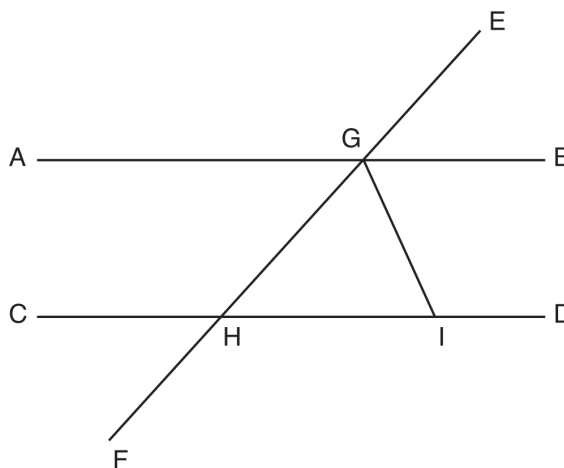
3. Steve drew line segments  $ABCD$ ,  $EFG$ ,  $BF$ , and  $CF$  as shown in the diagram below. Scalene  $\triangle BFC$  is formed.



Which statement will allow Steve to prove  $\overline{ABCD} \parallel \overline{EFG}$ ?

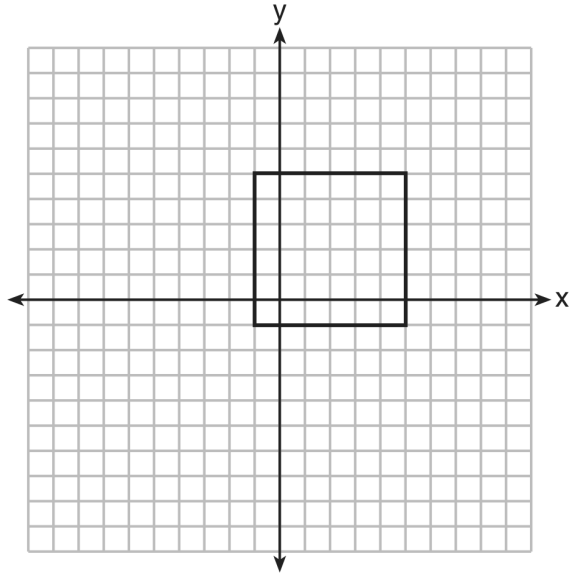
- A.  $\angle CFG \cong \angle FCB$     B.  $\angle ABF \cong \angle BFC$   
C.  $\angle EFB \cong \angle CFB$     D.  $\angle CBF \cong \angle GFC$

4. In the diagram below,  $\overline{EF}$  intersects  $\overline{AB}$  and  $\overline{CD}$  at  $G$  and  $H$ , respectively, and  $\overline{GI}$  is drawn such that  $\overline{GH} \cong \overline{IH}$ .



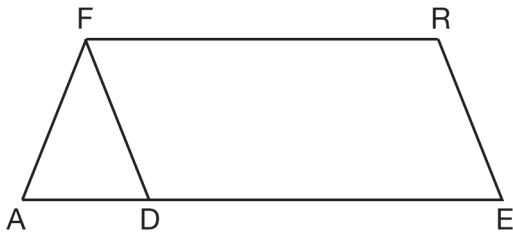
If  $m\angle EGB = 50^\circ$  and  $m\angle DIG = 115^\circ$ , explain why  $\overline{AB} \parallel \overline{CD}$ .

5. In the diagram below, a square is graphed in the coordinate plane.



A reflection over which line does *not* carry the square onto itself?

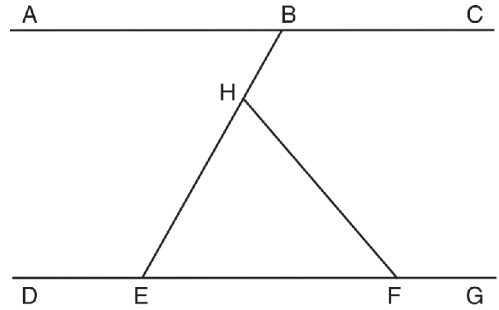
- A.  $x = 5$                       B.  $y = 2$   
 C.  $y = x$                       D.  $x + y = 4$
6. In the diagram of parallelogram  $FRED$  shown below,  $\overline{ED}$  is extended to  $A$ , and  $AF$  is drawn such that  $\overline{AF} \cong \overline{DF}$ .



If  $m\angle R = 124^\circ$ , what is  $m\angle AFD$ ?

- A.  $124^\circ$     B.  $112^\circ$     C.  $68^\circ$     D.  $56^\circ$

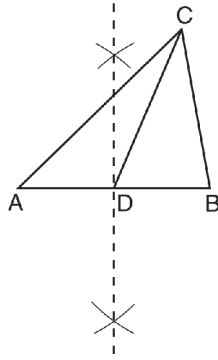
7. In the diagram below,  $\overline{ABC} \parallel \overline{DEFG}$ . Transversal  $\overline{BHE}$  and line segment  $HF$  are drawn.



If  $m\angle HFG = 130$  and  $m\angle EHF = 70$ , what is  $m\angle ABE$ ?

- A. 40    B. 50    C. 60    D. 70
8. In  $\triangle ABC$ ,  $m\angle CAB = 2x$  and  $m\angle ACB = x + 30$ . If  $\overline{AB}$  is extended through point  $B$  to point  $D$ ,  $m\angle CBD = 5x - 50$ . What is the value of  $x$ ?
- A. 25    B. 30    C. 40    D. 46

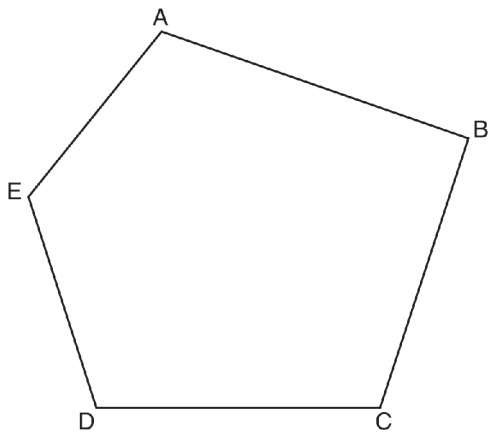
9. In the construction shown below,  $\overline{CD}$  is drawn.



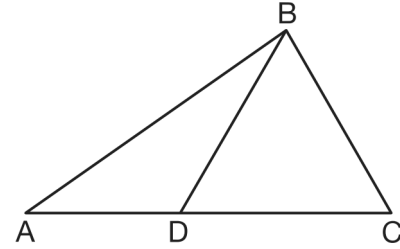
In  $\triangle ABC$ ,  $\overline{CD}$  is the

- A. perpendicular bisector of side  $\overline{AB}$
- B. median to side  $\overline{AB}$
- C. altitude to side  $\overline{AB}$
- D. bisector of  $\angle ACB$

10. Using a compass and a straightedge, construct the bisector of  $\angle CDE$ .



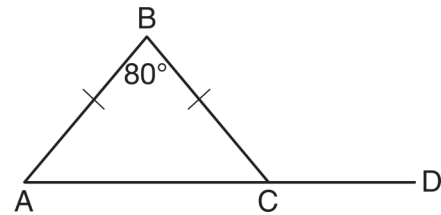
11. In the diagram of  $\triangle ABC$  below,  $\overline{BD}$  is drawn to side  $\overline{AC}$ .



If  $m\angle A = 35$ ,  $m\angle ABD = 25$ , and  $m\angle C = 60$ , which type of triangle is  $\triangle BCD$ ?

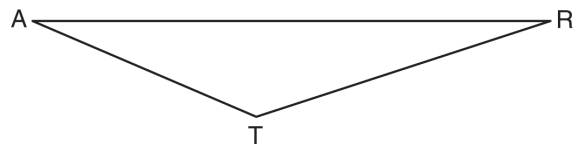
- A. equilateral
- B. scalene
- C. obtuse
- D. right

12. In the diagram below of isosceles  $\triangle ABC$ , the measure of vertex angle  $B$  is  $80^\circ$ . If  $\overline{AC}$  extends to point  $D$ , what is  $m\angle BCD$ ?

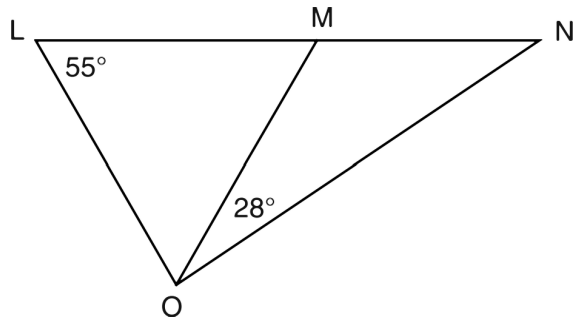


- A. 50
- B. 80
- C. 100
- D. 130

13. Using a compass and straightedge, construct the perpendicular bisector of side  $\overline{AR}$  in  $\triangle ART$  shown below. [Leave all construction marks.]



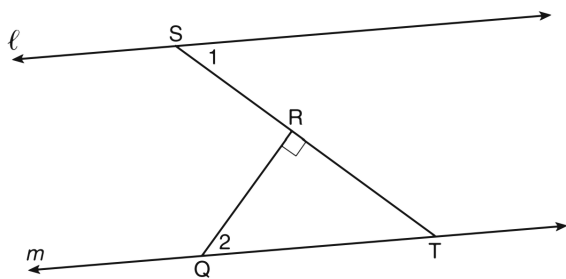
14. In the diagram below,  $\triangle LMO$  is isosceles with  $LO = MO$ .



If  $m\angle L = 55$  and  $m\angle NOM = 28$ , what is  $m\angle N$ ?

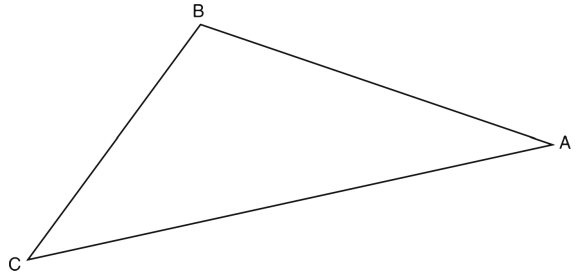
- A. 27      B. 28      C. 42      D. 70

15. In the diagram below,  $\ell \parallel m$  and  $\overline{QR} \perp \overline{ST}$  at  $R$ .



If  $m\angle 1 = 63$ , find  $m\angle 2$ .

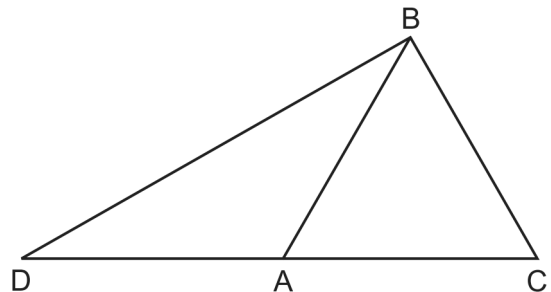
16. Using a compass and straightedge, construct the bisector of  $\angle CBA$ . [Leave all construction marks.]



17. In  $\triangle ABC$ ,  $m\angle A = 3x + 1$ ,  $m\angle B = 4x - 17$ , and  $m\angle C = 5x - 20$ . Which type of triangle is  $\triangle ABC$ ?

- A. right                      B. scalene  
C. isosceles                D. equilateral

18. In the diagram of  $\triangle BCD$  shown below,  $\overline{BA}$  is drawn from vertex  $B$  to point  $A$  on  $\overline{DC}$ , such that  $\overline{BC} \cong \overline{BA}$



In  $\triangle DAB$ ,  $m\angle D = x$ ,  $m\angle DAB = 5x - 30$ , and  $m\angle DBA = 3x - 60$ . In  $\triangle ABC$ ,  $AB = 6y - 8$  and  $BC = 4y - 2$ .

Find  $m\angle D$ .

Find  $m\angle BAC$ .

Find the length of  $\overline{BC}$ .

Find the length of  $\overline{DC}$ .