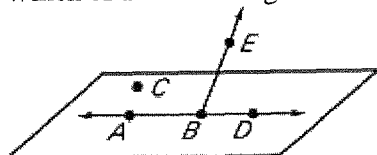


### Fall Final Review

- 1 Which of the following statements are *true*?



- A  $A, B, C,$  and  $D$  are coplanar  
 B  $A, B,$  and  $D$  are collinear  
 C  $\overrightarrow{BE}$  and  $\overrightarrow{BA}$  are opposite rays
- 2 What is the notation for the length of the segment between  $A$  and  $B$ ?

- 3 Let  $A$  be between  $B$  and  $C$ . Use the Segment Addition Postulate to solve for  $x$   
 $BA = 2x - 12$   
 $AC = 8x - 22$   
 $CB = 18$

- 4 Find the length of  $\overline{BD}$ , if  $\overline{AB} \cong \overline{CD}, AC = 3x,$   
 $BC = 7x + 2,$  and  $BD = 5x - 10.$



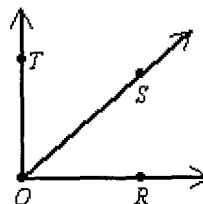
- 5 Find the distance between the points  $(-8, 6)$  and  $(-2, 13).$

- 6 Given points  $G(4, 8)$  and  $H(-12, -20),$  find the coordinates of the midpoint of  $\overline{GH}.$

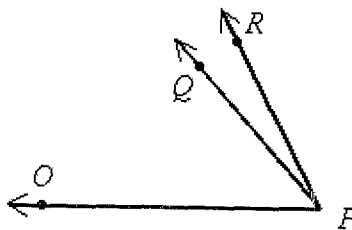
- 7 Find the coordinates of the other endpoint of a segment with given endpoint  $A(-13, 5)$  and midpoint  $M(-7, -2)$

- 8  $M$  is the midpoint of  $\overline{AB}$ . What conclusion can be made?  
 A  $\overline{AM} = \overline{MB}$   
 B  $\overline{AM} \cong \overline{MB}$   
 C  $\overline{AM} \cong \overline{MB}$   
 D  $AM + MB = AC$

- 9 If angle  $TOR$  is right, then angle  $TOS$  and angle  $SOR$  are what kind of angles? What is their angle pair relationship?

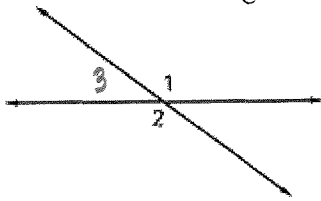


- 10  $m\angle RPQ = (2x - 6)^\circ$  and  $m\angle OPQ = (13x + 3)^\circ$  and  $m\angle RPO = 57^\circ.$   
 Find  $m\angle RPQ$  and  $m\angle OPQ$



11 If the nonshared sides of two adjacent angles form a pair of opposite rays, then the angles are \_\_\_\_\_

12  $\angle 1$  and  $\angle 2$  in the diagram are \_\_\_\_\_.  
 $\angle 1$  and  $\angle 3$  in the diagram are \_\_\_\_\_



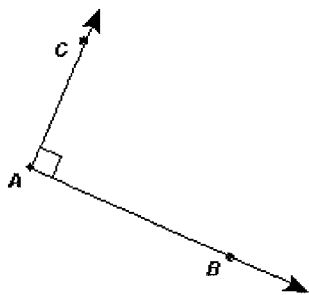
13  $\angle A$  and  $\angle B$  are complementary. The measure of  $\angle B$  is four times the measure of  $\angle A$ . What is  $m\angle A$ ?

14 Two angles  $\angle A$  and  $\angle B$  are each supplementary to  $\angle C$ . If  $m\angle B$  is  $52^\circ$ , what is  $m\angle A$ ?

15 What is the next number in the pattern  
 $-\frac{9}{2}, -4, -\frac{7}{2}, -3, \dots$ ?

16 What is the converse of "If it is cold, then we will not go outside"?

17 What does the diagram represent below?



18 "If  $AB + BC = 30$  and  $AB = 8$ , then  $8 + BC = 30$ " is an example of the \_\_\_\_\_

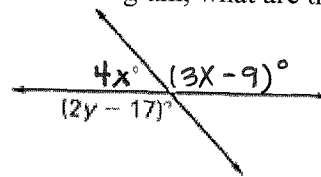
19 Identify all of the following properties

- A If  $y = x - 4$ , then  $x - 4 = y$
- B  $x + 3 = x + 3$
- C If  $x + 3 = y$  and  $y = -4$ , then  $x + 3 = -4$ .
- D If  $x = 3$ , then  $x - 4 = 3 - 4$ .

20 Identify the property of congruence  
 $AB = AB$

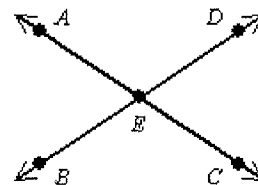
21  $\angle 1$  and  $\angle 2$  form a linear pair. If  $m\angle 2 = 57^\circ$ , what is  $m\angle 1$ ?

22 In the diagram, what are the values of  $x$  and  $y$ ?



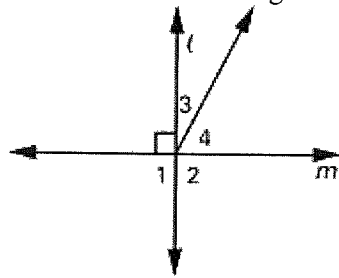
23  $\angle 1$  and  $\angle 2$  are supplementary angles.  $\angle 1$  and  $\angle 3$  are vertical angles. If  $m\angle 2 = 74^\circ$ , what is  $m\angle 3$ ?

24 In the figure shown,  $m\angle AED = 115^\circ$ . Which of the following statements are true?



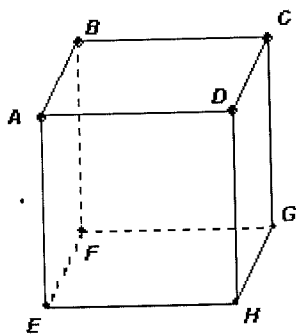
- A  $\angle BEC$  and  $\angle CED$  are adjacent angles.
- B  $m\angle BEC = 115^\circ$
- C  $m\angle AEB = 65^\circ$
- D  $\angle AEB$  and  $\angle DEC$  are vertical angles.

25 Which of the following is *are* true if  $l \perp m$ ?



- A  $\angle 1 \cong \angle 2$
- B  $m\angle 2 = 90^\circ$
- C  $\angle 3$  and  $\angle 4$  are supplementary.
- D  $m\angle 3 + m\angle 4 = 90^\circ$
- E  $m\angle 1 = m\angle 3 + m\angle 4$

Use the figure below.

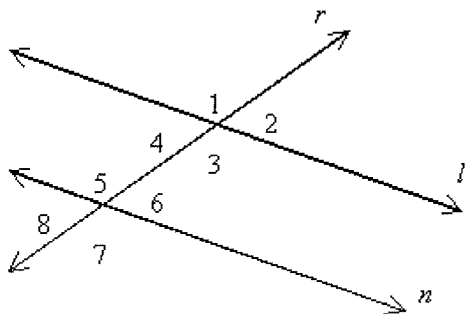


26 For the cube shown,  $\overleftrightarrow{AB}$  and  $\overleftrightarrow{CG}$  are \_\_\_\_\_

27 In the diagram, how many lines can be drawn through point  $P$  that are parallel to line  $l$ ?

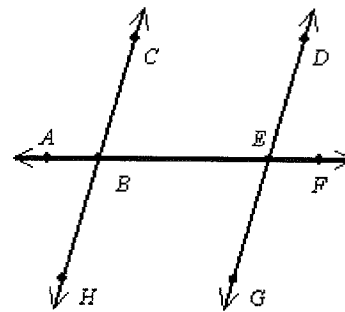


28 In the figure,  $l \parallel n$  and  $r$  is a transversal. Which of the following are true?



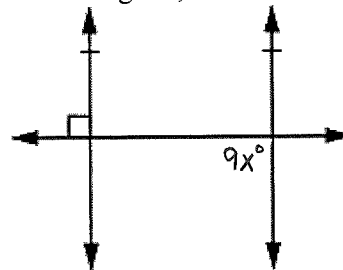
- A  $\angle 8 \cong \angle 2$
- B  $\angle 2 \cong \angle 6$
- C  $\angle 5 \cong \angle 3$
- D  $\angle 7 \cong \angle 4$

29 In the figure shown,  $\overleftrightarrow{HC} \parallel \overleftrightarrow{GD}$  and  $m\angle ABC = 115^\circ$ . Which of the following statements are true?

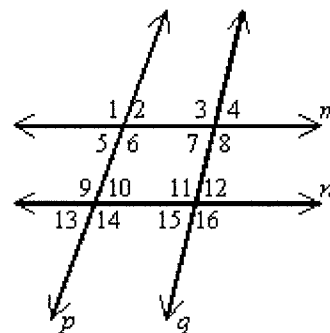


- A  $m\angle DEF = 75^\circ$
- B  $\angle ABH$  and  $\angle AEG$  are corresponding angles
- C  $\angle HBF$  and  $\angle AED$  are alternate interior angles
- D  $m\angle GEF = 75^\circ$

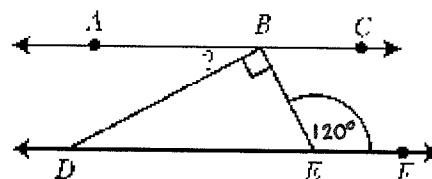
30 In the diagram, find the value of  $x$ .



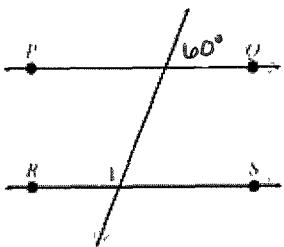
31 Line  $m$  is parallel to line  $n$  and they are each intersected by the same two transversals. Which angle are congruent to  $\angle 4$ ?



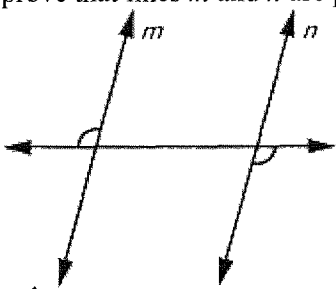
32 If  $\overline{AC}$  is parallel to  $\overline{DF}$ , what is the measure, in degrees, of  $\angle ABD$ ?



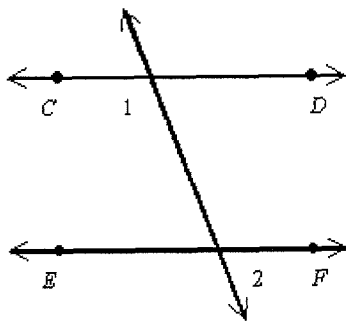
- 33 Find  $m\angle 1$  in the figure below  $\overleftrightarrow{PQ}$  and  $\overleftrightarrow{RS}$  are parallel



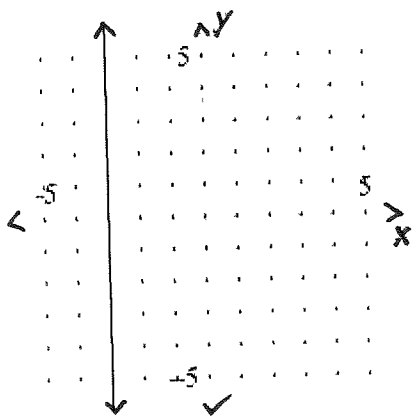
- 34 State the postulate or theorem you would use to prove that lines  $m$  and  $n$  are parallel



- 35 Find the value of  $x$  that will allow you to prove that  $\overleftrightarrow{CD}$  below is parallel to  $\overleftrightarrow{EF}$  if the measure of  $\angle 1$  is  $(5x + 30)^\circ$  and the measure of  $\angle 2$  is  $80^\circ$  (The figure may not be drawn to scale)



- 36 Determine the slope of the line graphed below



- 37 Find the slope of the line that passes through the points  $(0, -2)$  and  $(4, 0)$

- 38 What is the equation of a line that passes through the point  $(0, 4)$  and has a slope of  $\frac{1}{2}$ ?

- 39 What is an equation of a line that is parallel to  $y = \frac{2}{3}x - 7$  and passes through  $(0, 1)$ ?

- 40 Find the slope-intercept form of the the line passing through the point  $(-5, -8)$  and parallel to the line

- 41 What is the slope of a line perpendicular to the line  $2x + y = 9$ ?

- 42 What is the equation of a line perpendicular to  $y = x - 1$  and passes through  $(2, 3)$ ?

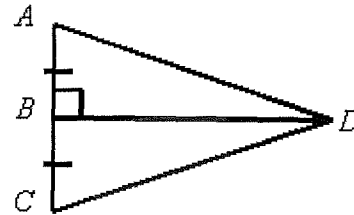
43 Classify the triangle by its sides and angles, whose angle measures are  $40^\circ$ ,  $100^\circ$ , and  $40^\circ$ ?

48 Given  $\angle B \cong \angle E$  and  $\angle C \cong \angle F$ . What other piece of information is needed to show  $\triangle ABC \cong \triangle DEF$  by ASA Congruence Postulate?

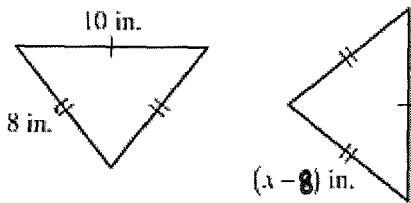
44 Given  $\triangle PQR \cong \triangle XYZ$ , which side is congruent to  $\overline{QR}$ ?

49  $\triangle ABD \cong \triangle CBD$ . Name the theorem or postulate that justifies the congruence.

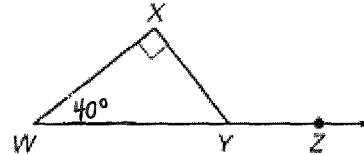
Explain how you know the triangles are congruent. Then write an equation and solve for  $x$ .



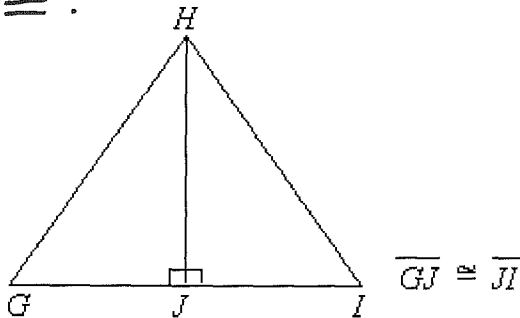
45



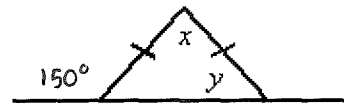
50 What is the measure of  $\angle XYZ$ ?



46 Refer to the figure below. Write the  $\triangle \cong$  statement and state why the  $\triangle$ s are  $\cong$ .

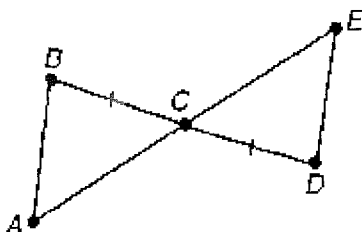


51 Find the values of  $x$  and  $y$ .

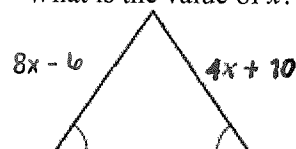


52 In  $\triangle ABC$ , if  $\overline{AB} \cong \overline{BC}$  and  $m\angle A = 42^\circ$ , then  $m\angle C =$  \_\_\_?

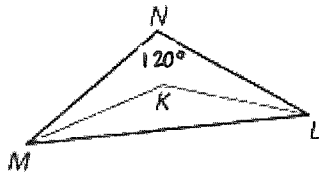
47 What must be true in order for  $\triangle ABC \cong \triangle EDC$  by the AAS Congruence Postulate?



53 What is the value of  $x$ ?

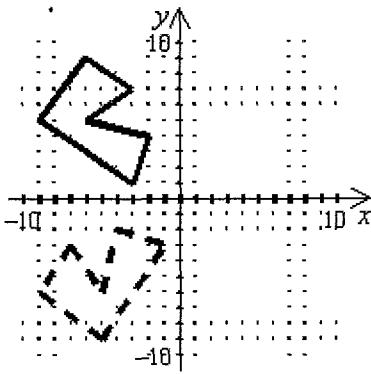


- 54 In the diagram,  $\overline{MK}$  and  $\overline{LK}$  are angle bisectors of  $\triangle MNL$  and  $m\angle MNL = 120^\circ$ . Find  $m\angle MKL$ .



- 55 In  $\triangle ABC$ ,  $AB = 3x - 2$ ,  $BC = x + 4$ , and  $AC = 7$ . Also  $AB \cong BC$ . What type of triangle is  $\triangle ABC$ ?

- 56 The change in position from the solid figure to the dotted figure is best described as a \_\_\_\_\_.

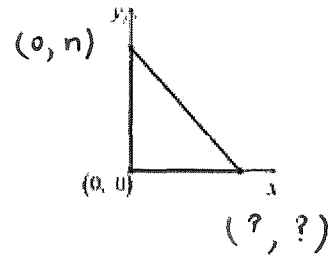


- 57 What is the translation image of  $(10, 7)$  after the translation  $(x, y) \rightarrow (x - 3, y - 1)$ ?

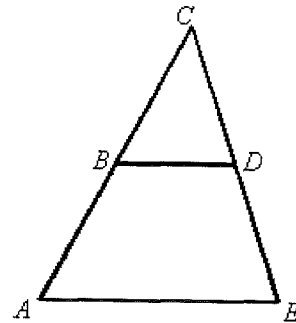
- 58 Identify the coordinates of the point  $(-9, -3)$  after a clockwise rotation of  $90^\circ$  about the origin.

- 59 A point  $P$  has coordinates  $(4, -2)$ . What are its new coordinates after point  $P$  is reflected over the  $y$ -axis?

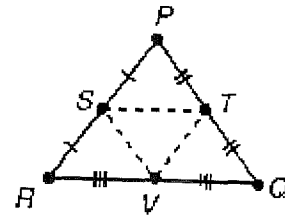
- 60 An isosceles right triangle is placed in a convenient position in the first quadrant of a coordinate plane. Which is the missing label for the vertex?



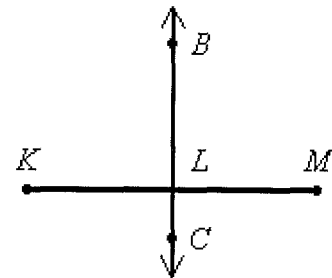
- 61 Solve for  $x$  given  $BD = \frac{3}{2}x + 10$  and  $AE = 4x + 14$ . Assume  $B$  is the midpoint of  $\overline{AC}$  and  $D$  is the midpoint of  $\overline{CE}$ .



- 62 For the triangle shown,  $VS = 7$  and  $VQ = 8$ . Then  $PQ =$  \_\_\_\_\_.



- 63 Given:  $\overleftrightarrow{BC}$  is the perpendicular bisector of  $\overline{KM}$ . Which statements are false?



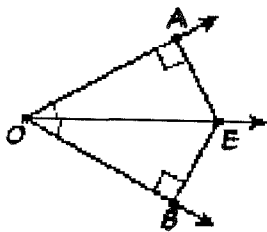
- A  $\angle BLM, \angle MLC, \angle CLK, \angle KLB$  are all right angles.  
 B  $CM = BM$   
 C  $\angle KBM$  is a right angle  
 D  $C$  is the midpoint of  $\overline{KM}$

64 Your town is holding local elections. The town sets up three polling stations around the area that form a triangle. They decide to meet at the circumcenter of their locations. The circumcenter is equidistant from the three \_\_\_\_\_ of the triangle formed by the polling stations.

65 Which of the following statements are false about the point of concurrency of the perpendicular bisectors of a triangle?

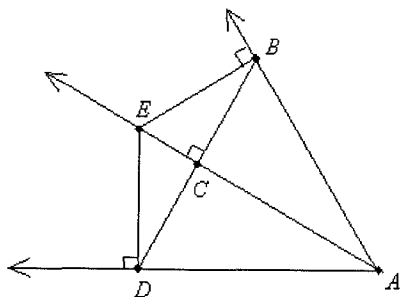
- I For a right triangle, the point of concurrency lies on the triangle.
- II For an obtuse triangle, the point of concurrency lies inside the triangle.
- III For an acute triangle, the point of concurrency lies outside the triangle.

66  $\overrightarrow{OE}$  bisects  $\angle BOA$ ,  $\overline{EA} \perp \overline{OA}$ , and  $\overline{EB} \perp \overline{OB}$ . Which statements are true?



- A  $\overline{AE} \cong \overline{BE}$
- B  $\angle AOE \cong \angle EAO$
- C  $\overline{OA} \cong \overline{OB}$
- D  $\angle AEO \cong \angle BEO$

67 Given  $\overrightarrow{AE}$  bisects  $\angle DAB$ . Find  $ED$  if  $CB = 4$  and  $CE = 3$  (not drawn to scale!!!)



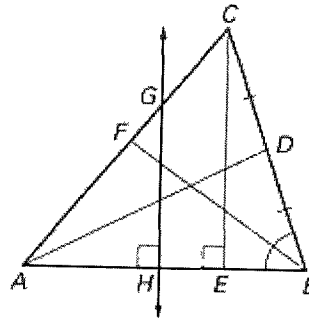
68 The medians of a triangle are concurrent. Their common point is the \_\_\_\_\_.

69  $\overline{PR}$  is an altitude of  $\triangle PQR$ . Therefore,  $\triangle PQR$  is \_\_\_\_\_.

70 Which of the following statements are true?

- I. Medians intersect inside a triangle.
- II. Perpendicular bisectors intersect inside a triangle.
- III. Angle bisectors intersect inside a triangle.

Use the figure for # 71 - 73.



71 In  $\triangle ABC$ , if  $m\angle ABF = 40^\circ$  and  $\overline{BF}$  is an angle bisector, find  $m\angle BCE$ .

72 Identify a median of  $\triangle ABC$ .

73 Identify an altitude of  $\triangle ABC$ .

74 In the diagram,  $P$  is the centroid of  $\triangle ABC$  and  $PD = 5$ . Find  $BD$ .

