

(Key)

MS Geometry Midterm Review

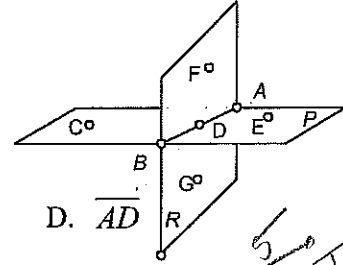
Name \_\_\_\_\_

Choose the best answer for each question.

1. Find the length of the segment with endpoints L(-1, -3) and M(-6, 9).  
 A. 13      B. 17      C. 5      D. 12

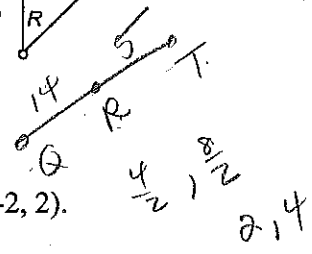
$$d = \frac{\sqrt{(-1+6)^2 + (-3-9)^2}}{\sqrt{25 + 144}} = \frac{\sqrt{169}}{\sqrt{169}} = 13$$

2. Points A, B and D  
 A. determine a plane       B. are collinear  
 C. are contained in only plane P       D. are noncoplanar points



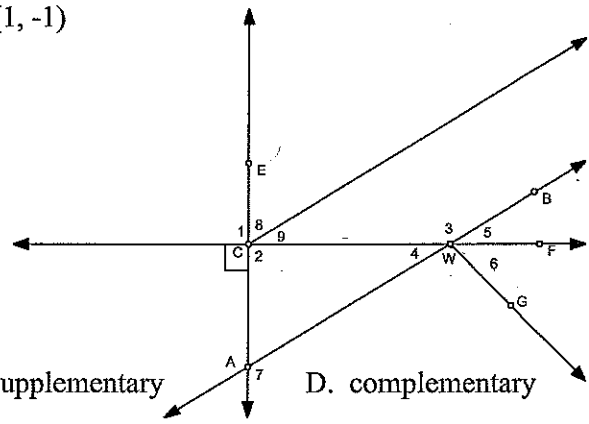
3. What is the intersection of planes P and R. *line AB*  
 A. points A, D and B      B. AB       C.  $\overline{AB}$

4. What is the measure of  $\overline{QT}$  if R is between Q and T,  $QR = 14$  and  $RT = 5$ ?  
 A. 10      B. 11       C. 19      D. 9



5. Find the coordinates of the midpoint of the segment with endpoints D(6, 6) and E(-2, 2).  
 A. (3, 4)       B. (2, 4)      C. (4, 8)      D. (1, -1)

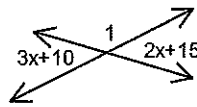
6. What are the sides of  $\angle 5$ ?  
 A.  $WG$  and  $WF$       B.  $AB$  and  $WF$   
 C.  $WB$  and  $WG$        D.  $WB$  and  $WF$



7.  $\angle 5$  and  $\angle 6$  are  
 A. adjacent      B. vertical      C. supplementary      D. complementary
8.  $\angle 8$  and  $\angle 9$  are  
 A. adjacent      B. vertical      C. supplementary       D. complementary
9.  $\angle 1$  and  $\angle 2$  are  
 A. adjacent       B. vertical      C. complementary      D. linear pair

10.  $\angle 3$  and  $\angle 4$  are  
 A. adjacent      B. vertical       C. linear pair      D. complementary

11. Find  $m\angle 1$ .  
 A. 25       B. 155  
 C. 175       D. 5

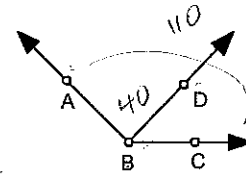


$$3x + 10 = 2x + 15$$

$$x = 5$$

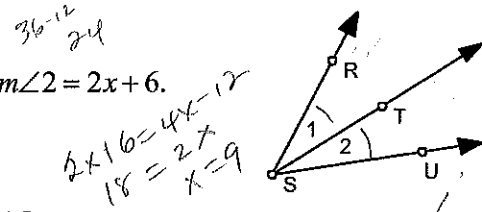
$$10 + 15 = 25$$

12. If  $m\angle ABD = 40$  and  $m\angle ABC = 110$ , find  $m\angle DBC$ .  
 A. 150      B. 130  
 C. 70      D. 80



13. Find  $m\angle RSU$  if  $ST$  bisects  $\angle RSU$ ,  $m\angle 1 = 4x - 12$  and  $m\angle 2 = 2x + 6$ .

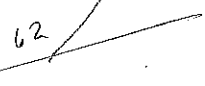
- A. 48      B. 18  
C. 9      **(D.) 24**



$36 - 12 = 24$   
 $2x + 6 = 4x - 12$   
 $18 = 2x$   
 $x = 9$

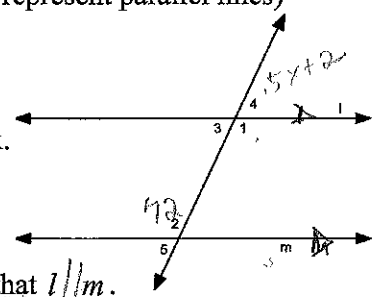
14.  $\angle P$  and  $\angle Q$  form a linear pair and  $m\angle P = 62$ . Find  $m\angle Q$ .

- A. 62      B. 28      **(C.) 118**      D. 90



15. Given  $l \parallel m$  and  $m\angle 2 = 72$ , find  $m\angle 3$ . (for 21-23, the rectangle represent parallel lines)

- (A.) 108**      B. 72  
C. 18      D. 112



16. Given  $l \parallel m$ ,  $m\angle 1 = 9x + 5$  and  $m\angle 2 = x + 37$ , find the value of  $x$ .

- A. 32      **(B.) 4**  
C. 41      D. 39

$9x + 5 = x + 37$   
 $8x = 32$   
 $x = 4$

17. Given  $m\angle 4 = 5x + 2$  and  $m\angle 5 = 3x + 28$ , find the value of  $x$  so that  $l \parallel m$ .

- A. 26      **(B.) 13**  
C. 67      D. 75

$5x + 2 = 3x + 28$   
 $2x = 26$   
 $x = 13$

18. A right triangle must be

- A. isosceles      B. acute      C. scalene      **(D.) either isosceles or scalene**

19. Find the measures of the legs of an equilateral triangle  $PQR$  if  $PQ = 5x - 7$  and  $PR = 2x + 5$ .

- A. 39      **(B.) 13**      C. 12      D. 4

$5x - 7 = 2x + 5$   
 $3x = 12$   
 $x = 4$   
 $20 - 7 = 13$

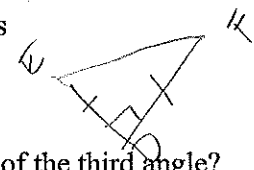
20. In triangle  $ABC$ , what is the angle opposite  $\overline{AB}$ ?

- A.  $\overline{CA}$       B.  $\angle A$       C.  $\angle B$       **(D.)  $\angle C$**



21. In triangle  $DEF$ , if  $\overline{DE} \cong \overline{DF}$  and  $\overline{EF}$  is the hypotenuse, then triangle  $DEF$  is

- A. acute and scalene      B. right and scalene  
**(C.) right and isosceles**      D. obtuse and isosceles



22. The measures of two angles of a triangle are  $38^\circ$  and  $47^\circ$ . What is the measure of the third angle?

- A. 85      **(B.) 95**      C. 133      D. 142

23. If  $\triangle IGH \cong \triangle KLJ$ , then  $\angle H$  is congruent to

- (A.)  $\angle J$**       B.  $\angle I$       C.  $\angle K$       D.  $\angle L$

24. Which of the following is not a postulate used to prove the congruence of two triangles?

- A. ASA      **(B.) SSA**      C. SAS      D. SSS

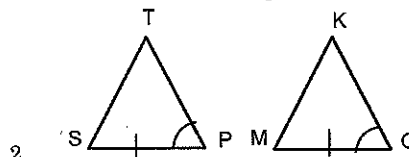
25. The measure of the vertex angle of an isosceles triangle is  $120^\circ$ . That is the measure of the base angle?

- A. 60      **(B.) 30**      C. 35      D. 40

26. Name one additional pair of corresponding parts that need to be congruent in order to prove that

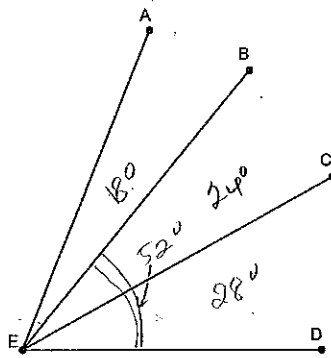
$\triangle STP \cong \triangle MKO$  by ASA.

- (A.)  $\angle S \cong \angle M$**       B.  $\overline{TP} \cong \overline{KO}$   
C.  $\angle T \cong \angle K$       D.  $\overline{ST} \cong \overline{MK}$

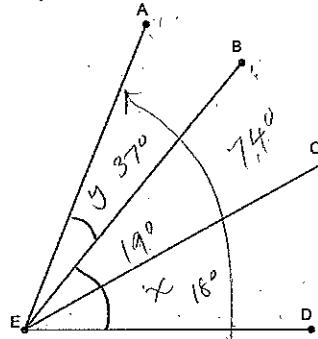


Part II. Solve the following angle problems:

27.  $\angle BED = 52^\circ$   
 $\angle CED = 28^\circ$   
 $\angle AEB = 18^\circ$   
 Find  $\angle AEC$  42°

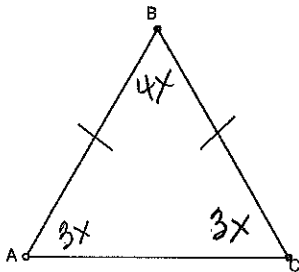


- \* 28. EB bisects  $\angle AED$   
 $\angle AED = 74^\circ$   
 $\angle BEC = 19^\circ$   
 Find  $\angle CED$  18°



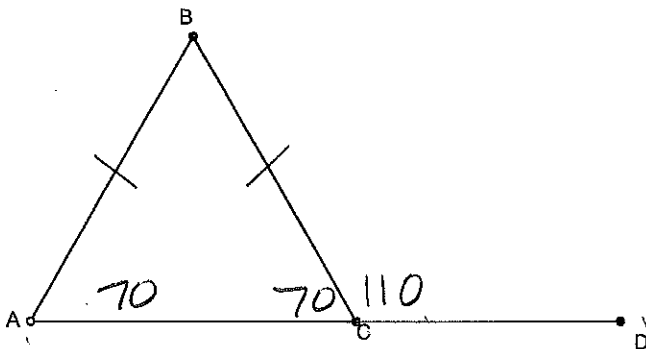
$$\begin{aligned} 74 - 19 &= 55 & y &= 37 \\ 19 + x &= y \\ x + y + 19 &= 74 \\ x - y &= -19 \\ x + y &= 55 \\ \hline 2x &= 36 \\ x &= 18 \end{aligned}$$

29.  $\triangle ABC$  is isosceles with base AC.  
 $m\angle A = 3x$      $m\angle B = 4x$   
 Find  $x =$  18     $m\angle A =$  54     $m\angle B =$  72     $m\angle C =$  54



$$\begin{aligned} 10x &= 180 \\ x &= 18 \end{aligned}$$

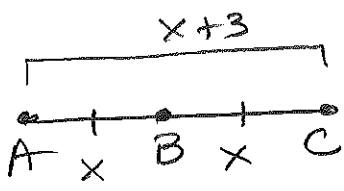
30.  $\triangle ABC$  is isosceles with base AC.  
 $m\angle BCD = 110^\circ$   
 Find  $m\angle A$  70     $m\angle B$  40     $m\angle ACB$  70



Draw the segment and then solve.

31. B is the midpoint of  $\overline{AC}$ .

$AC = x + 3$   
 $AB = x$

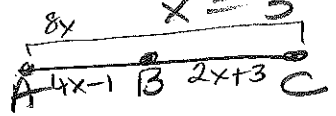


$x + x = x + 3$   
 $2x = x + 3$   
 $x = 3$

$AC = \underline{6}$   
 $AB = \underline{3}$   
 $BC = \underline{3}$

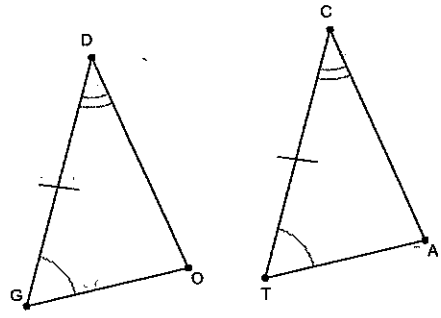
32. B is between points A and C.

$AB = 4x - 1$   
 $BC = 2x + 3$   
 $AC = 8x$



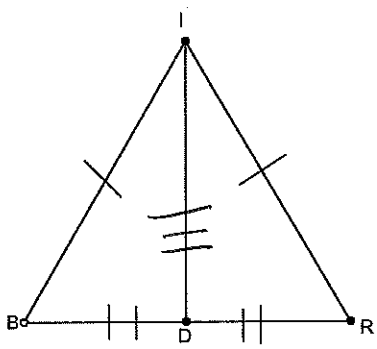
$AC = \underline{8}$   
 $AB = \underline{3}$   
 $BC = \underline{5}$

33.  $\triangle DOG \approx \triangle CAT$  BY: ASA

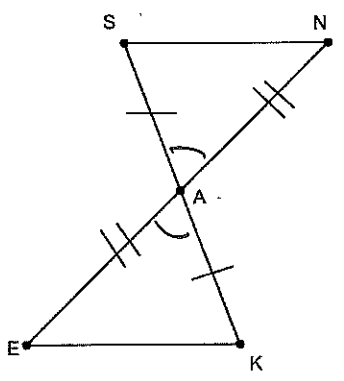


$4x - 1 + 2x + 3 = 8x$   
 $6x + 2 = 8x$   
 $2 = 2x$   
 $1 = x$

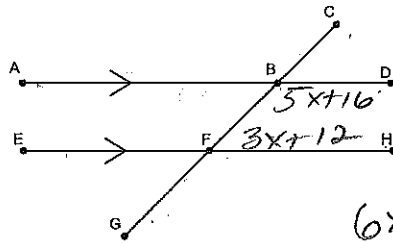
34.  $\triangle BID \approx \triangle RID$  BY: SSS



35.  $\triangle SAN \approx \triangle KAE$  BY: SAS



Use the following sketch to the right for #36 - 37.



36.  $\angle ABF = 6x - 16$   
 $\angle BFH = 2x + 28$   
 Find X 11     $\angle EFB$  130     $\angle CBD$  50

$$6x - 16 = 2x + 28$$

$$4x = 44$$

$$x = 11$$

37.  $\angle DBF = 5x + 16$   
 $\angle BFH = 3x + 12$   
 Find X 19     $\angle ABF$  69     $\angle EFB$  111

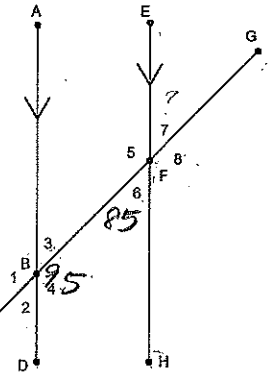
$$5x + 16 + 3x + 12 = 180$$

$$8x + 28 = 180$$

$$8x = 152$$

$$x = 19$$

Use the sketch to the right for # 38 - 43.



38. List all Alternate Interior angles. 6 and 3, 5 and 4  
 39. List all Alternate Exterior angles. 7 and 2, 8 and 1  
 40. List all Corresponding angles. 7 and 3, 5 and 1  
8 and 4, 6 and 2  
 41. List all Same side interior angles. 5 and 3, 6 and 4  
 42. If  $\angle ABC = 108^\circ$  then  $\angle GFH =$  108 ;  $\angle HFB =$  72  
 43. If  $\angle DBF = 95^\circ$ , then  $\angle BFH =$  85 ;  $\angle BFE =$  95

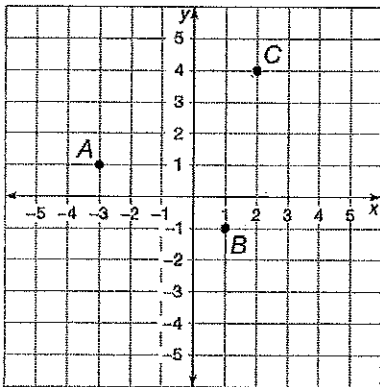
44. What is the distance between the points  $(-7, 5)$  and  $(-10, -2)$ ?

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

$$d = \sqrt{(-2 - 5)^2 + (-10 + 7)^2}$$

$$= \sqrt{49 + 9} = \sqrt{58}$$

45. What is the midpoint of the line segment that connects points B and C?



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

B                      C  
 $(1, -1)$              $(2, 4)$

$$\frac{1+2}{2}, \frac{-1+4}{2}$$

$$\left( \frac{3}{2}, \frac{3}{2} \right)$$

$$\boxed{\left( 1.5, 1.5 \right)}$$

