

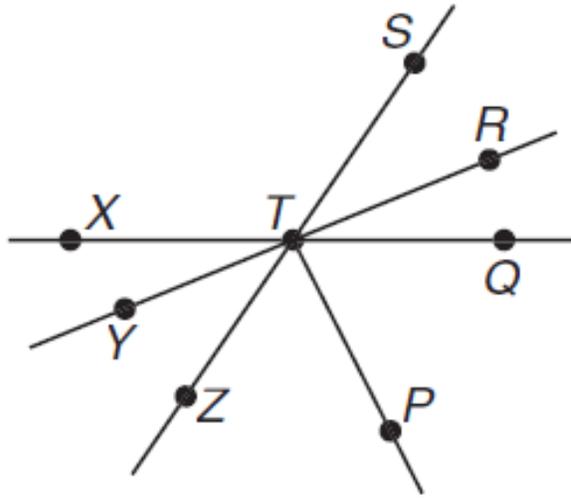
Part 1:

1) Given  $\overline{XTQ}$ ,  $\overline{YTR}$ ,  $\overline{ZTS}$ , and

$$m\angle XTZ = 54^\circ$$

$$m\angle RTQ = 21^\circ$$

$\overrightarrow{TP}$  bisects  $\angle QTZ$



Find the following angle measures:

1.  $m\angle XTS$

\_\_\_\_\_

2.  $m\angle STR$

\_\_\_\_\_

3.  $m\angle QTZ$

\_\_\_\_\_

4.  $m\angle QTP$

\_\_\_\_\_

5.  $m\angle PTZ$

\_\_\_\_\_

6.  $m\angle YTZ$

\_\_\_\_\_

7.  $m\angle XTY$

\_\_\_\_\_

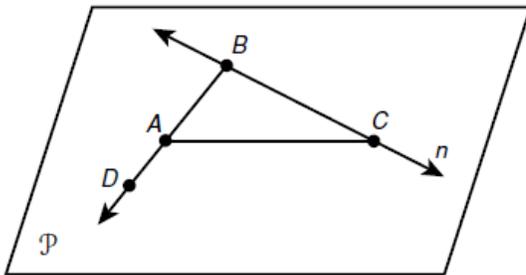
8.  $m\angle XTQ$

\_\_\_\_\_

9.  $m\angle PTX$

\_\_\_\_\_

Use the diagram for questions 2-4



2) What is another name for plane  $\mathcal{P}$ ?

- A plane  $B$
- B plane  $n$
- C plane  $ABC$
- D plane  $BAD$

3) Which is the name of a ray with endpoint  $B$ ?

- A  $\overrightarrow{AB}$
- B  $\overrightarrow{BC}$
- C  $\overrightarrow{DB}$
- D  $\overrightarrow{BA}$

5) If  $m\angle A = 47^\circ$ , what is the measure of a complement of  $\angle A$ ?

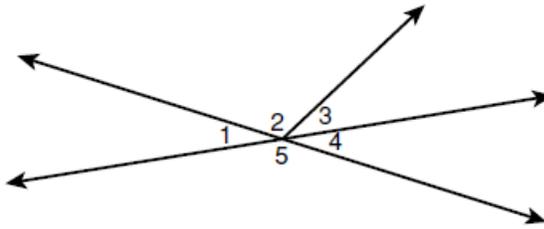
- A  $43^\circ$
- B  $133^\circ$

6) Name the intersection of line  $n$  and  $\overline{AC}$ .

- A point  $B$
- B point  $C$

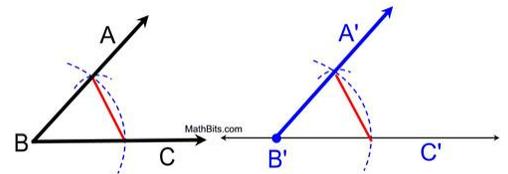
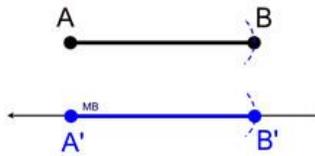
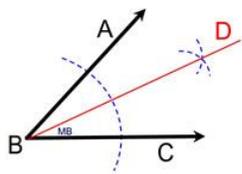
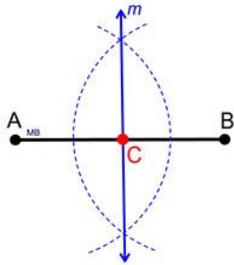
For 7-12, use the drawing with the marked angles to list *all* of the options that apply from the list. (Some may be used more than once; not all options may be used).

- 7) \_\_\_\_\_ Linear Pair  
 8) \_\_\_\_\_ Adjacent Angles  
 9) \_\_\_\_\_ Vertical Angles  
 10) \_\_\_\_\_ Supplementary Angles  
 11) \_\_\_\_\_ Consecutive Adjacent Angles on a Line  
 12) \_\_\_\_\_ Angles at a Point



- A)  $\sphericalangle 1$  &  $\sphericalangle 2$   
 B)  $\sphericalangle 1$ ,  $\sphericalangle 2$  &  $\sphericalangle 3$   
 C)  $\sphericalangle 1$  &  $\sphericalangle 4$   
 D)  $\sphericalangle 1$  &  $\sphericalangle 5$   
 E)  $\sphericalangle 1$  &  $\sphericalangle 3$   
 F)  $\sphericalangle 1$ ,  $\sphericalangle 2$ ,  $\sphericalangle 3$ ,  $\sphericalangle 4$  &  $\sphericalangle 5$   
 G)  $\sphericalangle 4$  &  $\sphericalangle 5$   
 H)  $\sphericalangle 2$  &  $\sphericalangle 5$

13) Name the construction shown:

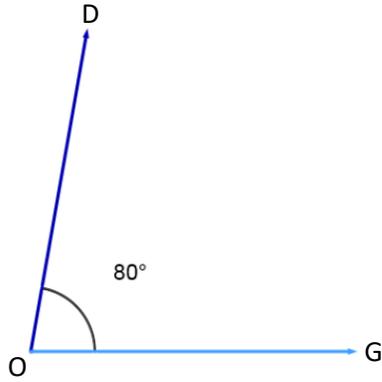


- a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_

14) Construct UM such that  $UM = 2.25(UR)$  using a compass and a straightedge.



15) Given the  $m\angle DOG = 80^\circ$ , construct  $\angle CAT$  on  $\overrightarrow{AT}$  such that  $m\angle CAT = 40^\circ$  using a compass and a straightedge.



16) An angle measures  $(6x-7)^\circ$ . What is the measure of its complement in terms of  $x$ ?

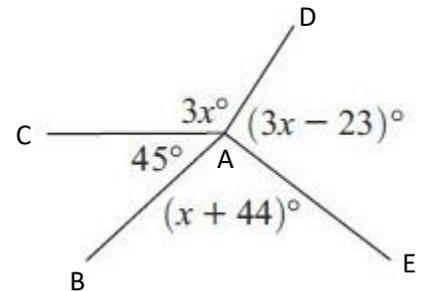
17) The measure of an angle is eight times the measure of its supplement. What is the measure of the angle?

18) Given the segment intersect at A, determine the value of  $x$ .

Equation: \_\_\_\_\_

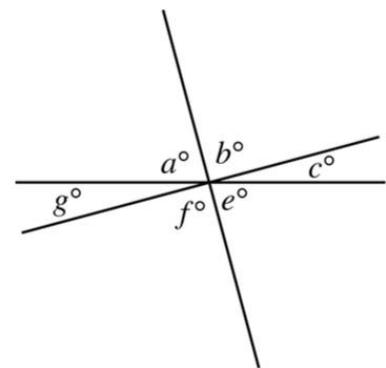
Reason: \_\_\_\_\_

Solve it:



19) In the figure above, three lines intersect at a point. If  $f = 85$  and  $c = 25$ , what is the value of  $a$ ?

- (A) 60
- (B) 65
- (C) 70
- (D) 75
- (E) 85



Note: Figure not drawn to scale.

State the relationships (reasons) you used to determine your answer: (should be at least two)

\_\_\_\_\_ & \_\_\_\_\_

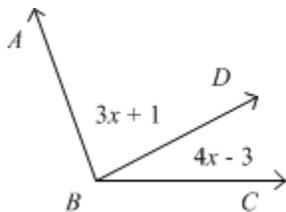
20) Given that E is between D and F and  $DE=2x$ ,  $EF=3x+4$  and  $DF=29$ , determine the value of x.

Draw it: \_\_\_\_\_ Equation: \_\_\_\_\_ Reason: \_\_\_\_\_

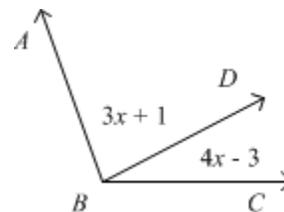
For 21 and 22, be sure to write equations with reasons. You will need to do that on the test!

21) Given  $\angle ABC$  that is not drawn to scale, determine the value of x when:

a)  $m\angle ABC = (5x + 20)^\circ$



b)  $\overrightarrow{BD}$  bisects  $\angle ABC$



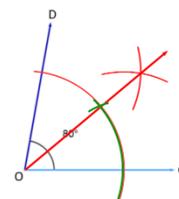
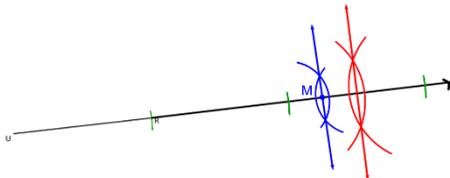
22)  $\overrightarrow{EF}$  bisects  $\angle RED$ .  $m\angle REF = (5x + 21)^\circ$ ,  $m\angle RED = (13x)^\circ$ . Determine the value of x and  $m\angle REF$ .

**ANSWERS:**

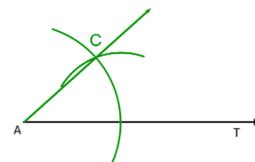
- 1) 1.  $126^\circ$  2.  $33^\circ$  3.  $126^\circ$  2) C 3) D 4) B 5) A 6) D 7) D 8) A,B,D,G 9) C 10) D,G 11) B,D,G  
 4.  $63^\circ$  5.  $63^\circ$  6.  $33^\circ$  12) F 13) a. Bisect Segment b. Bisect Angle c. Copy Segment d. Copy Angle  
 7.  $21^\circ$  8.  $180^\circ$  9.  $117^\circ$  14\*) Copy and bisect segment skills 15\*) Bisect + Copy half or Copy then bisect

16) Complement =  $(97-6x)^\circ$

17) Angle =  $160^\circ$



\*Note: rays and lines have arrows that are hard to see



18)  $m\angle CAD + m\angle DAE + m\angle EAB + m\angle BAC = 360^\circ$ ;

angles at a point sum to  $360^\circ$ ;  $x=42$

19) C; vertical angles are congruent plus either angles on a line sum to  $180^\circ$  or angles at a point sum to  $360^\circ$

20)  $x=5$ ;  $DE+EF=DF$ ; Segment addition postulate

21) a.  $x=11$  with  $m\angle ABD + m\angle DBC = m\angle ABC$  from angle addition postulate

b.  $x=4$  with  $m\angle ABD = m\angle DBC$  because  $\angle ABD \cong \angle DBC$  since an angle bisector  $\rightarrow$  two congruent angles and congruent angles have equal measure

22)  $x=14$ ,  $m\angle REF = 86^\circ$ ;  $m\angle REF + m\angle FED = m\angle RED$  from angle addition postulate and  $m\angle REF =$

$m\angle FED$  because  $\angle REF \cong \angle FED$  since an angle bisector  $\rightarrow$  two congruent angles and congruent angles have equal measure