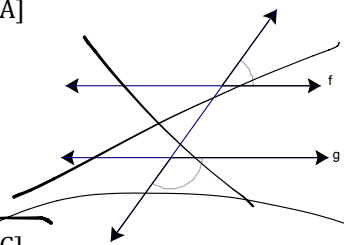
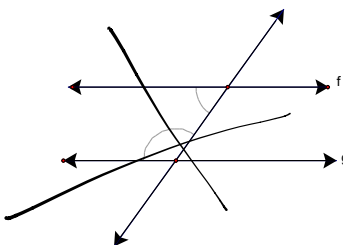
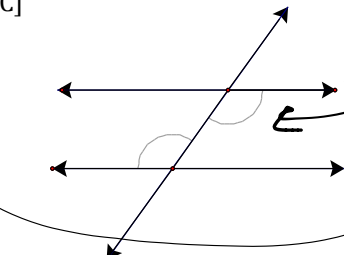
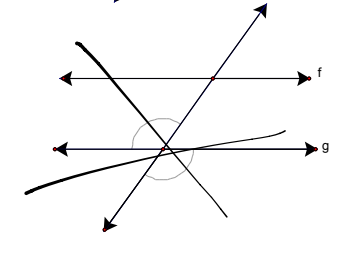


Select the best answer for each problem. Drawings and figures are **not** drawn to scale.

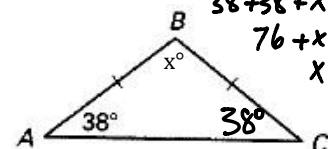
1). Circle the letter of the diagram which can be used to prove lines  $f$  and  $g$  are parallel.

[A]  [B] 

[C]  [D] 

*Alternate Interior Angles are  $\cong$*

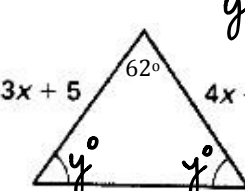
2) For the following triangles, classify the triangle by its angles and its sides then find the value of  $x$

a.   $38 + 38 + x = 180$   
 $76 + x = 180$   
 $x = 104$

By Sides: isosceles

By Angles: obtuse

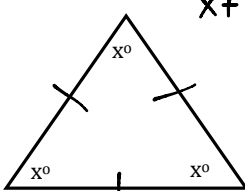
$x =$  104

b.   $y + y + 62 = 180$   
 $2y + 62 = 180$   
 $2y = 118$   
 $y = 59$

By Sides: isosceles

By Angles: acute

$x =$  15

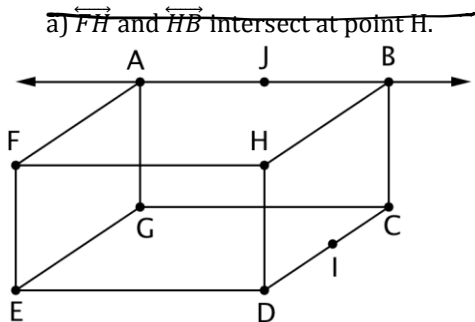
c.   $x + x + x = 180$   
 $3x = 180$   
 $x = 60$

By Sides: equilateral

By Angles: equiangular

$x =$  60

3) Circle the statement which is **NOT** true.



b) ~~Points A, J, and H are coplanar.~~

c) ~~Rays  $\overrightarrow{JA}$  and  $\overrightarrow{JB}$  are opposite rays.~~

d) ~~Point I is collinear with points D and C.~~

e) Plane EFH intersects plane AGC.

$$\left( \frac{-2 + -4}{2}, \frac{7 + -9}{2} \right) = \left( \frac{-6}{2}, \frac{-2}{2} \right)$$

$$= (-3, -1)$$

4) Find the midpoint of AB given  $A = (-2, 7)$  and  $B = (-4, -9)$

- a)  $(-6, 2)$     b)  $(-3, -1)$     c)  $(-6, -2)$     d)  $(2, 2)$

5) Which statement is the **converse** statement of "If it is the weekend, then I am working."

- a) If it is not the weekend, then I am not working.    b) If it is Saturday, then I am working.  
 c) If I am working then it is the weekend.    d) If I am not working, then it is not the weekend.

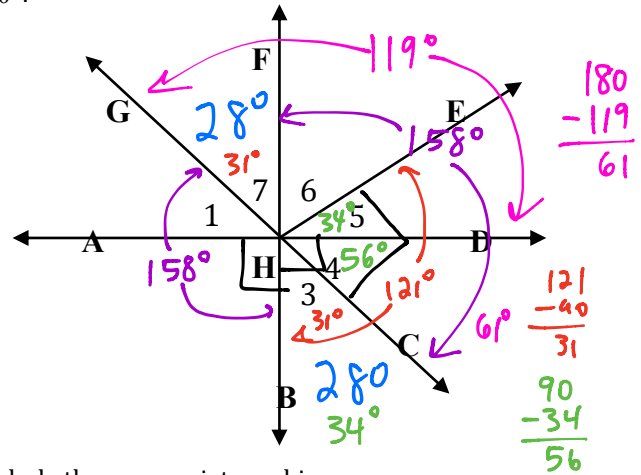
*(switch condition & conclusion)*

6) Complete the statement given that  $m\angle EHC = m\angle DHB = m\angle AHB = 90^\circ$ .

The values may change except for the givens above

Treat each question as a separate problem.

- a. IF  $m\angle 7 = 28^\circ$ , then  $m\angle 3 = 28^\circ$
- b. IF  $m\angle EHB = 121^\circ$ , then  $m\angle 7 = 31^\circ$
- c. IF  $m\angle 3 = 34^\circ$ , then  $m\angle 5 = 34^\circ$
- d. IF  $m\angle GHB = 158^\circ$ , then  $m\angle FHC = 158^\circ$
- e. IF  $m\angle GHD = 119^\circ$ , then  $m\angle 4 = 61^\circ$



7) Sketch a polygon that has the following characteristics. Be sure to include the appropriate markings.

<p>a) concave quadrilateral</p>	<p>b) equiangular hexagon</p>	<p>c) equilateral octagon</p>	<p>d) regular pentagon</p>
---------------------------------	-------------------------------	-------------------------------	----------------------------

8) Which statement is the **inverse** of the statement "If a line exists then it contains at least two points."

- a) A line exists if and only if it contains two points.
- b) If a line does not exist then it does not contain at least two points.
- c) If a line contains at least two points then it exists.
- d) A line that does not contain at least two points then does not exist.

Add "not" to condition and conclusion

Original and converse true

9) Which statement can be written as a **true biconditional** statement?

- a) If a polygon is a square, then it has four equal sides.
- b) If an angle is a right angle, then it measures  $90^\circ$ .
- c) If an angle measures  $100^\circ$ , then it is obtuse.
- d) If angles measure  $30^\circ$  and  $60^\circ$ , then they are complementary.

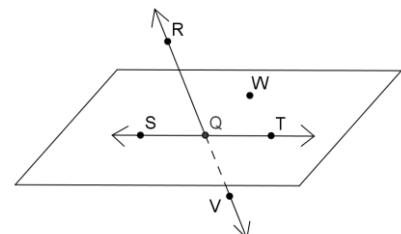
10) Which statement is the **contrapositive** of the statement "If a line exists then it contains at least two points."

- a) A line exists if and only if it contains two points.
- b) If a line does not exist then it does not contain at least two points.
- c) If a line contains at least two points then it exists.
- d) If a line does not contain at least two points then it does not exist.

Switch & add not

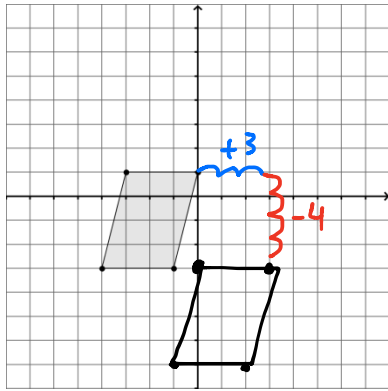
11) Using the figure at the right, which of the following statements is **not** true?

- ~~a)  $\overline{ST}$  lies in plane W.~~
- ~~b) R, Q, and V are collinear.~~
- c)  $\overrightarrow{QR}$  and  $\overrightarrow{QT}$  are opposite rays.
- ~~d) R, Q, and V are coplanar.~~

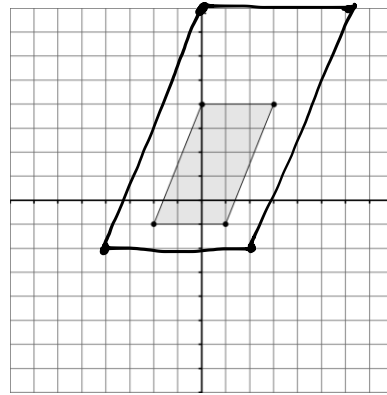


oops, that goes over the ST in answer a

12) a. Perform the transformation  $(x, y) \rightarrow (x + 3, y - 4)$ .



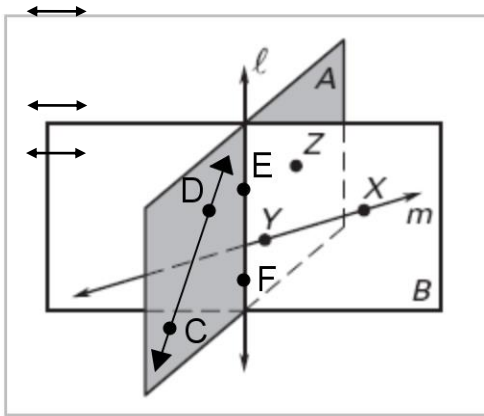
b. Perform a dilation with a scale factor of 2.



Multiply all point coordinates times 2

13) Planes A and B intersect as shown. Points C and D lie on plane A. Points X, Y and Z lie on plane B.

True or False: (Circle the correct choice.)



- a)  $CD$  is on plane A.
- b) Points C, D, and X are coplanar.
- c)  $XY$  intersects line  $EF$ .
- d)  $XY$  intersects line  $CD$ .

T or F  
T or F

Complete the sentence:

- e) The intersection of plane A and plane B is

$EF$  or line  $l$

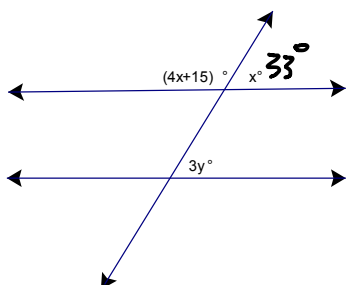
14) Select the appropriate property for the statement.

If  $m\angle R = m\angle S$  then  $m\angle R + m\angle K = m\angle S + m\angle K$

- a) Addition Property of Equality
- b) Reflexive Property of Equality
- c) Symmetric Property of Equality
- d) Transitive Property of Equality

add  $m\angle K$  to both sides

15). Use the figure at the right to find the values of  $x$  and  $y$  that will make the two lines parallel!



$$4x + 15 + x = 180$$

$$5x + 15 = 180$$

$$5x = 165$$

$$x = 33$$

$$3y = 33$$

$$y = 11$$

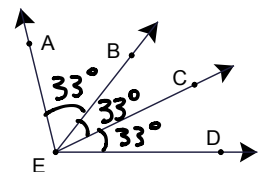
$$x = 33$$

$$y = 11$$

16) Given  $\vec{EC}$  bisects  $\angle BED$  and  $\vec{EB}$  bisects  $\angle AEC$ .  $m\angle BEC = 33^\circ$  find  $m\angle AED$ .

- a)  $33^\circ$
- b)  $66^\circ$
- c)  $99^\circ$
- d)  $121^\circ$

$$\begin{array}{r} 33 \\ \times 3 \\ \hline 99 \end{array}$$

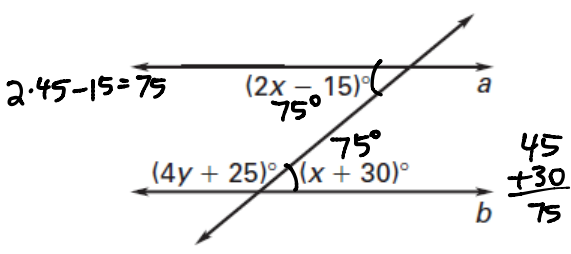


17) Select the correct property for each statement. Mark the letter of the appropriate choice in the blank.

- A. Multiplication Property of =
- B. Symmetric Property
- C. Distributive Property
- D. Subtraction Property of =
- E. Transitive Property
- F. Division Property of =
- G. Addition Property of =
- H. Substitution Property of =
- I. Reflexive Property

- B a) \_\_\_\_\_ If  $m\angle X = m\angle Z$ , then  $m\angle Z = m\angle X$
- E b) If  $BC = CD$  and  $CD = EF$ , then  $BC = EF$
- I c) For any segment  $AB$ ,  $AB = AB$
- A d) If  $m\angle K = 30^\circ$ , then  $3(m\angle K) = 90^\circ$ .
- D e) If  $x + 2 = y + 5$ , then  $x = y + 3$

18). Find the values of  $x$  and  $y$  which will make  $a \parallel b$ . Explain your reasoning.



Why does this value of  $x$  make the two lines parallel?  
 $2x - 15 = x + 30$  makes alt. int. angles congruent  
 $x - 15 = 30$   
 $x = 45$

Why does this value of  $y$  make the two lines parallel?  
 $4y + 25 + 75 = 180$  makes consecutive interior angles supplementary  
 $4y + 100 = 180$   
 $4y = 80$   
 $y = 20$

19) Using the image at the right, find the values of  $a$  and  $b$ .

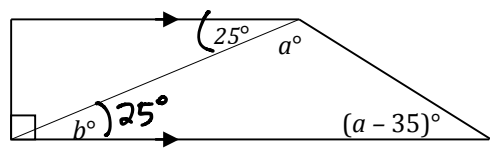
$$25 + a + a - 35 = 180$$

$$2a - 10 = 180$$

$$2a = 190$$

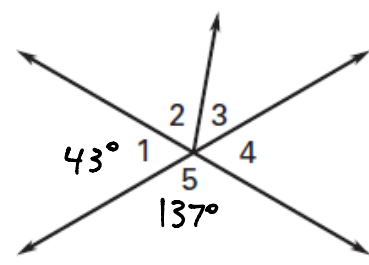
$$a = 95$$

$a = 95$     $b = 25$



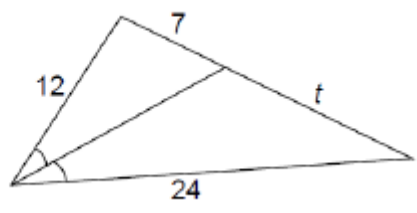
20) For questions a-d use the figure to the right.

- a) Name a pair of vertical angles.  $\angle 1, \angle 4$
- b) Name a linear pair of angles.  $\angle 1, \angle 5$
- c) Name an angle supplementary to  $\angle 4$ .  $\angle 5$
- d) If  $m\angle 5 = 137^\circ$ , then  $m\angle 1 = 43^\circ$



21) Find the value of  $t$ .

- A. 5
- B. 7
- C. 14
- D. 17



$$\frac{12}{7} = \frac{24}{t}$$

$$12t = 168$$

$$\frac{12t}{12} = \frac{168}{12}$$

$$t = 14$$

22) For the following questions, use the diagram at the right.

a) Is  $m \parallel n$ ? Yes or no?

Explain your reasoning.

*consecutive int  $\angle$ 's suppl*

b) Is  $s \parallel t$ ? Yes or no?

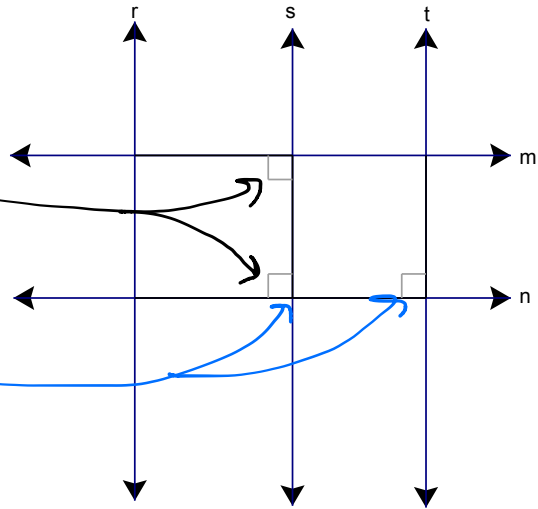
Explain your reasoning.

*corresponding  $\angle$ 's  $\cong$*

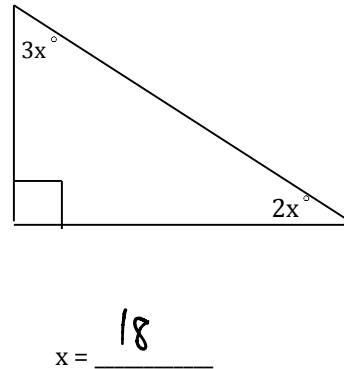
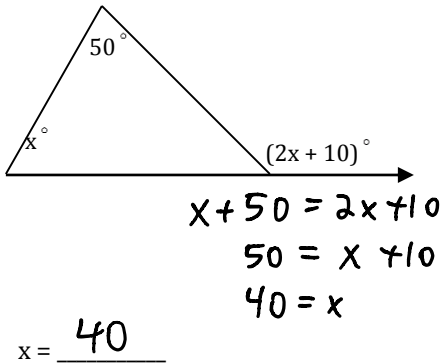
b) Is  $r \parallel s$ ? Yes or no?

Explain your reasoning.

*not able to prove  
no information about angles on line r*

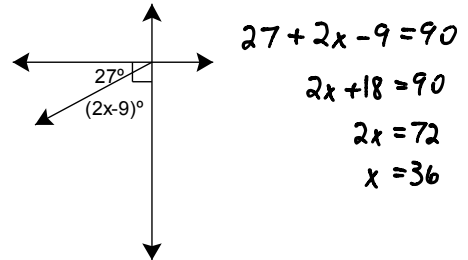


23) Find the value of the variable.



24) Find the value of  $x$  based on the diagram at the right.

- a) 27
- b) 36**
- c) 40.5
- d) 81

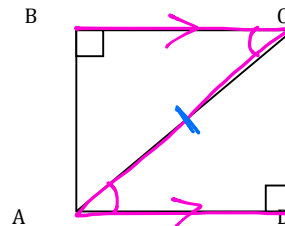


25) Choose the congruence relationship for the triangles at the right.

Given that  $\overline{BC} \parallel \overline{AD}$ ,

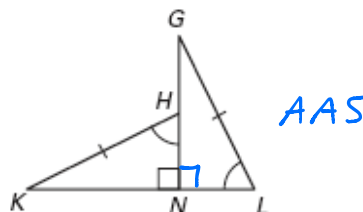
- a)  $\triangle ABC \cong \triangle ACD$
- b)  $\triangle ABC \cong \triangle CDA$**
- c)  $\triangle ABC \cong \triangle DAC$
- d)  $\triangle ABC \cong \triangle BCD$

*AAS*



26) Which postulate or theorem would be used to prove the two triangles congruent?

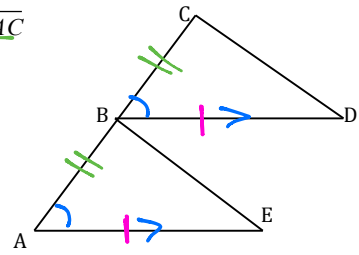
- a) H-L Theorem
- b) ASA Postulate
- c) SAS Postulate
- d) AAS Theorem**



27) Which postulate or theorem would be used to prove the two triangles congruent?

- a) SAS Postulate
- b) SSS Postulate
- c) ASA Postulate
- d) AAS Theorem

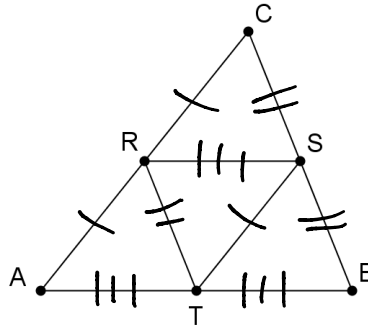
Given:  $\overline{BD} \parallel \overline{AE}$ ,  $\overline{AE} \cong \overline{BD}$   
*Bisecting point of  $\overline{AC}$*   
 Prove:  $\triangle ABE \cong \triangle BCD$



28) Given:  $R, S,$  and  $T$  are midpoints.  
 Which of the following is a **false** statement?

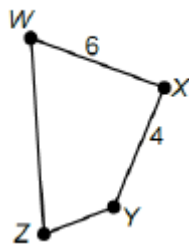
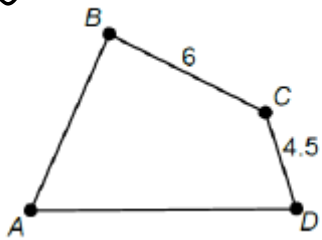
- ~~a)  $\overline{RS} \parallel \overline{AT}$~~
- b) If  $ST = 9$  then  $2AC = 18$ .
- ~~c)  $(1/2)AB = RS$~~
- ~~d)  $\triangle STR \cong \triangle ART$~~

Skip, this is a chapter 5 problem



29)  $ABCD \sim WXYZ$ . Find the scale factor of  $ABCD$  to  $WXYZ$ .

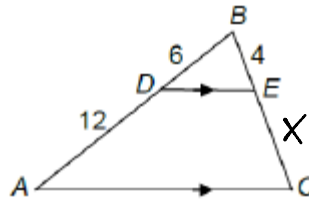
- A. 1:1
- B. 2:3
- C. 3:2
- D. 9:8



$$\frac{6}{4} \div 2 = \frac{3}{2}$$

30) Find  $EC$  in the picture to the right.

$$EC = 6$$



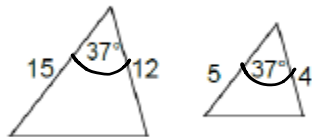
$$\frac{6}{4} = \frac{12}{x}$$

$$6x = 48$$

$$x = 6$$

31) Which postulate or theorem proves the triangles are similar?

- A. AA Similarity
- B. ASA Similarity
- C. SAS Similarity
- D. SSS Similarity



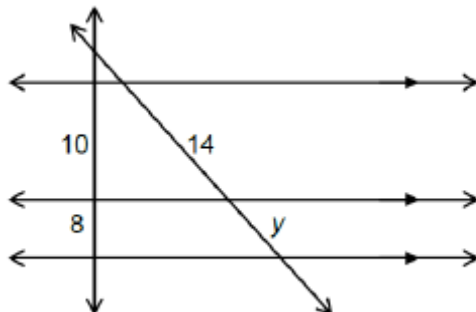
$$\frac{15}{5} \stackrel{?}{=} \frac{12}{4}$$

$$\frac{3}{1} = \frac{3}{1} \checkmark$$

32)

Find the value of  $y$ .

- A. 5.7
- B. 11.2
- C. 12.0
- D. 17.5



$$\frac{10}{14} = \frac{8}{y}$$

$$10y = 112$$

$$y = 11.2$$