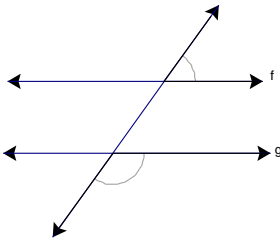


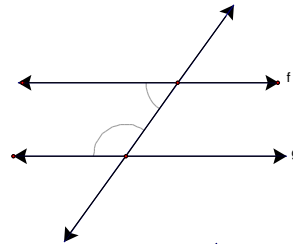
Select the best answer for each problem. Drawings and figures are **not** drawn to scale.

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

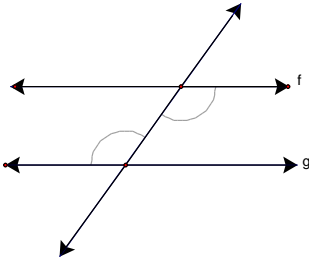
[A]



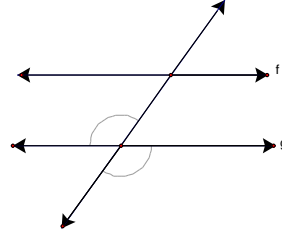
[B]



[C]

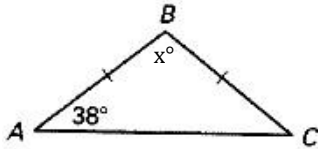


[D]

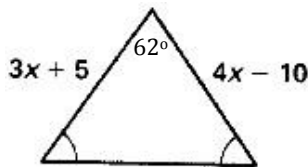


2) For the following triangles, classify the triangle by its angles and its sides then find the value of  $x$

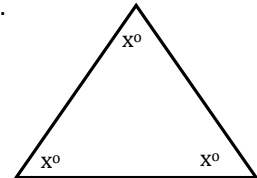
a.



b.



c.



By Sides: \_\_\_\_\_

By Sides: \_\_\_\_\_

By Sides: \_\_\_\_\_

By Angles: \_\_\_\_\_

By Angles: \_\_\_\_\_

By Angles: \_\_\_\_\_

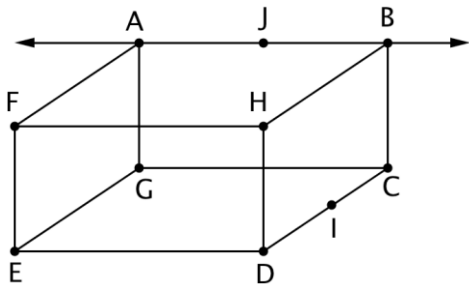
$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

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

a)  $\overleftrightarrow{FH}$  and  $\overleftrightarrow{HB}$  intersect at point H.



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.

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

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

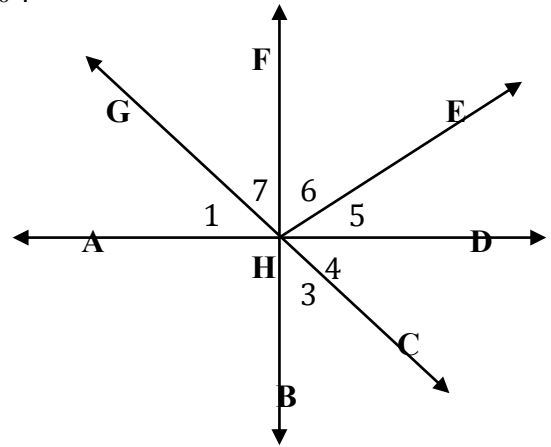
5) Which statement is the **converse** statement of "If it is the weekend, then I am working."

- 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.

- 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.



- IF  $m\angle 7 = 28^\circ$ , then  $m\angle 3 =$
- IF  $m\angle EHB = 121^\circ$ , then  $m\angle 7 =$
- IF  $m\angle 3 = 34^\circ$ , then  $m\angle 5 =$
- IF  $m\angle GHB = 158^\circ$ , then  $m\angle FHC =$
- IF  $m\angle GHD = 119^\circ$ , then  $m\angle 4 =$

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

a) concave quadrilateral	b) equiangular hexagon	c) equilateral octagon	d) regular pentagon
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- 8) Which statement is the **inverse** of the statement "If a line exists then it contains at least two points."

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

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

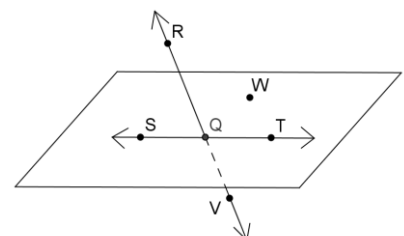
- If a polygon is a square, then it has four equal sides.
- If an angle is a right angle, then it measures  $90^\circ$ .
- If an angle measures  $100^\circ$ , then it is obtuse.
- If angles measure  $30^\circ$  and  $60^\circ$ , then they are complementary.

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

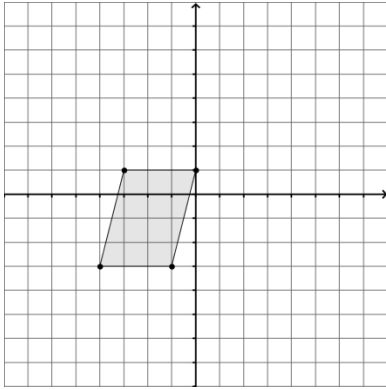
- A line exists if and only if it contains two points.
- If a line does not exist then it does not contain at least two points.
- If a line contains at least two points then it exists.
- If a line does not contain at least two points then it does not exist.

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

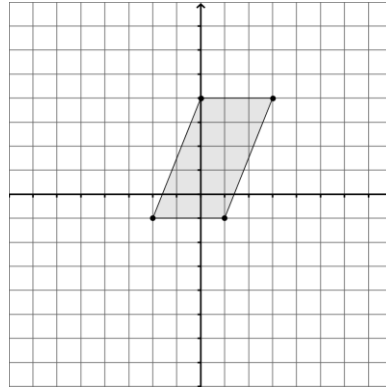
- ST lies in plane W.
- R, Q, and V are collinear.
- $\overrightarrow{QR}$  and  $\overrightarrow{QT}$  are opposite rays.
- $\overleftrightarrow{RQ}$  and V are coplanar.



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

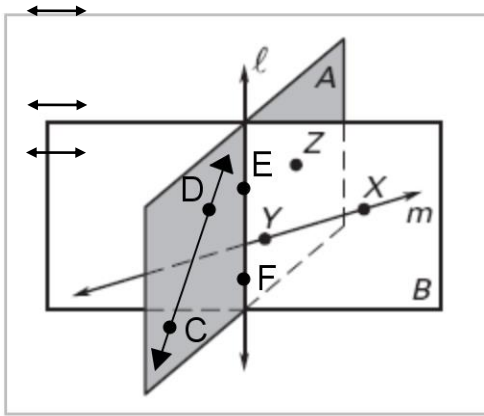


b. Perform a dilation with a scale factor of 2.



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. T or F
- d)  $XY$  intersects line CD. T or F

T or F

T or F

Complete the sentence:

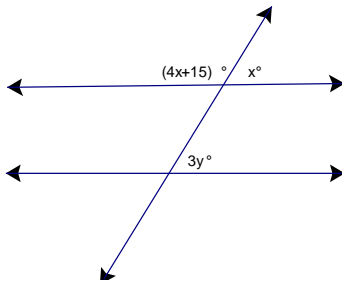
- e) The intersection of plane A and plane B is

14) Select the appropriate property for the statement.

$$\text{If } m\angle R = m\angle S \text{ then } m\angle R + m\angle K = m\angle S + m\angle K$$

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

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

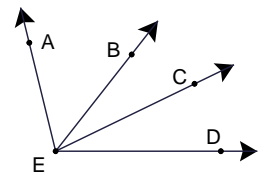


x = \_\_\_\_\_

y = \_\_\_\_\_

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)  $121^\circ$



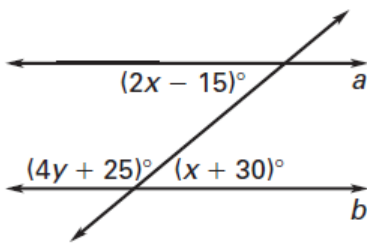
17) Select the correct property for each statement. Mark the letter of the appropriate choice in the blank.

- |                                 |
|---------------------------------|
| 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           |

- a) \_\_\_\_\_ If  $m\angle X = m\angle Z$ , then  $m\angle Z = m\angle X$
- b) If  $BC = CD$  and  $CD = EF$ , then  $BC = EF$
- c) For any segment  $AB$ ,  $AB = AB$
- d) If  $m\angle K = 30^\circ$ , then  $3(m\angle K) = 90^\circ$ .
- 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?

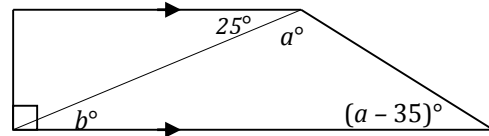


$x =$  \_\_\_\_\_

Why does this value of  $y$  make the two lines parallel?

$y =$  \_\_\_\_\_

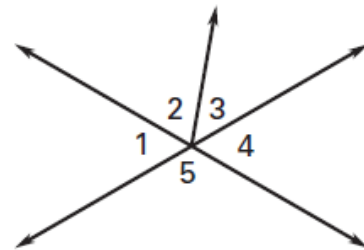
19) Using the image at the right, find the values of  $a$  and  $b$ .



$a =$  \_\_\_\_\_  $b =$  \_\_\_\_\_

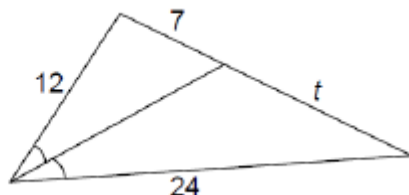
20) For questions a-d use the figure to the right.

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



21) Find the value of  $t$ .

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



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

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

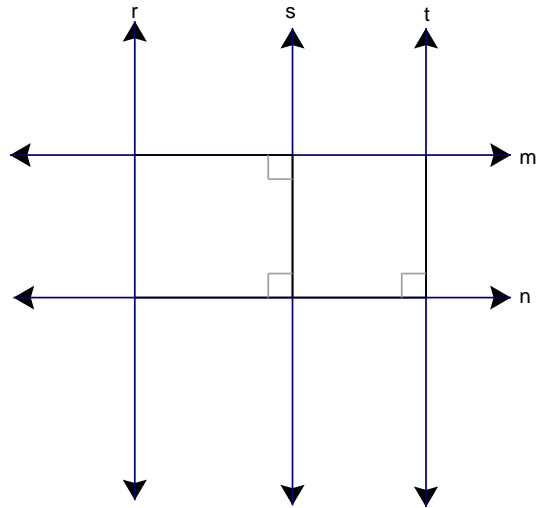
Explain your reasoning.

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

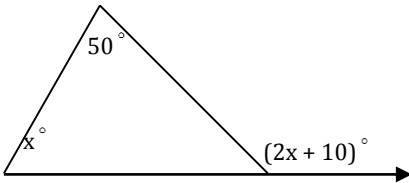
Explain your reasoning.

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

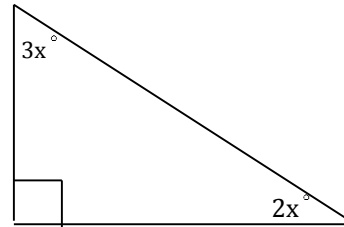
Explain your reasoning.



23) Find the value of the variable.



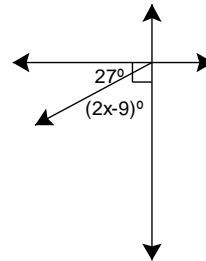
$x =$  \_\_\_\_\_



$x =$  \_\_\_\_\_

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

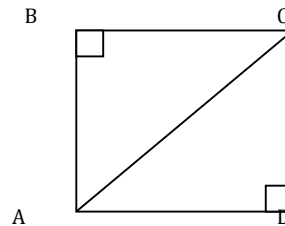
- a) 27
- b) 36
- c) 40.5
- d) 81



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

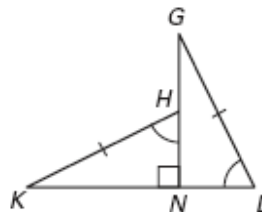
Given that  $\overline{BC} \parallel \overline{AD}$ ,

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



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

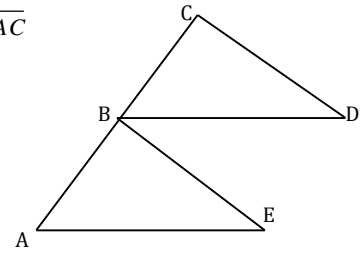
- a) H-L Theorem
- b) ASA Postulate
- c) SAS Postulate
- d) AAS Theorem



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

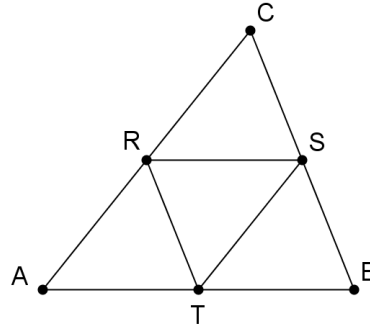
- a) SAS Postulate
- b) SSS Postulate
- c) ASA Postulate
- d) AAS Theorem

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



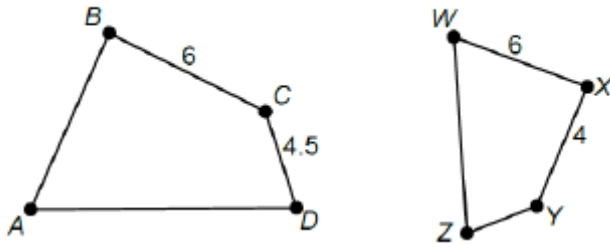
28) Given:  $R, S,$  and  $T$  are midpoints.  
 Which of the following is a **false** statement?

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

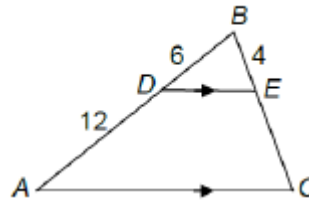


29)  $ABCD \sim WXYZ$ . Find the scale factor of  $ABCD$  to  $WXYZ$ .

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

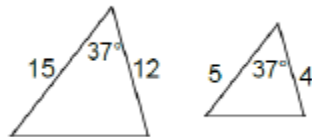


30) Find  $EC$  in the picture to the right.



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

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



32)

Find the value of  $y$ .

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

