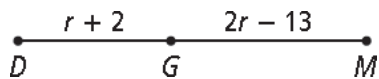


1. The vertices of triangle  $ABC$  are  $A(0, -2)$ ,  $B(5, -2)$ , and  $C(8, 2)$ . Use the distance formula to find the perimeter of triangle  $ABC$ .

2.  $M$  is the midpoint of  $\overline{AB}$ . The coordinates of  $A$  are  $(-2, 3)$  and the coordinates of  $B$  are  $(4, -3)$ . Find the coordinates of  $M$ .

3. If  $M(0, 2)$  is the midpoint of  $\overline{AB}$  and the coordinates of  $A$  are  $(3, 6)$ , then find the coordinates of  $B$ .

4. If  $DM = 35$ , what is the value of  $r$ ?



5. If  $\angle 1$  has a measure of  $38^\circ$ , what is the measure of its complement?

6. Write the **inverse** of the following statement:

“If you enter the Grand Prize drawing, then you will get rich.”

7. Write the **converse** of the following statement:

“If you lower your cholesterol, then you eat Quirky oatmeal.”

8. Write the **contrapositive** of the following statement:

“If you feed your dog Krazy Kibble, then it will grow three inches.”

9. Given each conditional, write the desired form:

a) If 3 is a prime number, then it is odd.      **INVERSE**

b) If two segments are congruent, then they have the same length. **CONVERSE**

c) If the weather is cloudy, then it will rain. **CONTRAPOSITIVE**

10. Two angles are complementary. The measure of one angle is  $15^\circ$  more than twice the other. What is the measure of the *smaller* angle?

A.  $35^\circ$

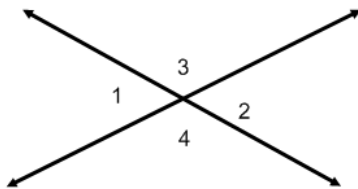
B.  $65^\circ$

C.  $55^\circ$

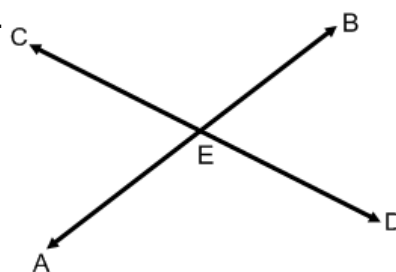
D.  $25^\circ$

11. The measure of two supplementary angles are represented by  $(3x+15)$  and  $(2x-10)$ . What is the value of  $x$ ?

12. In the accompanying figure, two lines intersect,  $m\angle 1 = 2x + 18$ , and  $m\angle 2 = 8x - 30$ . Find the number of degrees in  $m\angle 4$ .

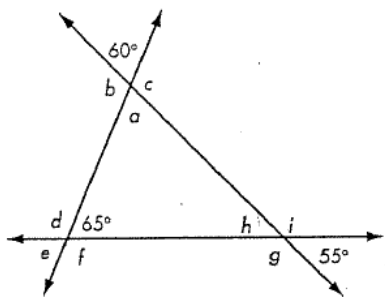


13. In the accompanying diagram,  $\overline{AB}$  and  $\overline{CD}$  intersect at  $E$ . If  $m\angle AEC = 4x - 40$  and  $m\angle BED = x + 50$ , find the number of degrees in  $\angle AEC$ .

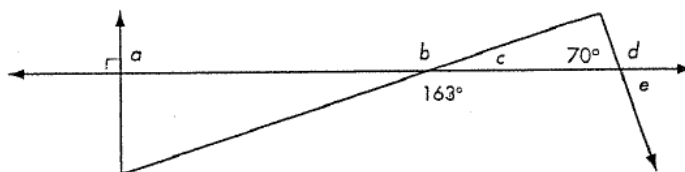


14. Find the measure of each letter.

4.\*



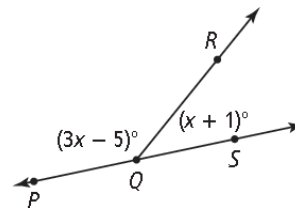
5.



15. Points  $P$ ,  $Q$ , and  $S$  are collinear.

a. What is  $m\angle PQR$ ?

b. If a ray  $QT$  bisects  $\angle RQS$ , what will be the measure of one of the resulting angles?

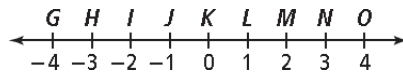


16. Points  $L$ ,  $M$ , and  $N$  are collinear and  $M$  is between  $L$  and  $N$ . You are given  $LM = 13$  and  $LN = 20$ . What is a possible value of  $MN$ ?

17. Ray  $BD$  bisects  $\angle ABC$  so that  $m\angle DBC = (x + 6)$  and  $m\angle ABD = (2x - 12)$ . What is  $x$ ?

18. Use the number line.

a. What is  $KN + IK$ ?



b. What is the coordinate of the midpoint of  $\overline{GO}$ ?

19. Use inductive reasoning to find the next two terms in the sequence. Describe the pattern.

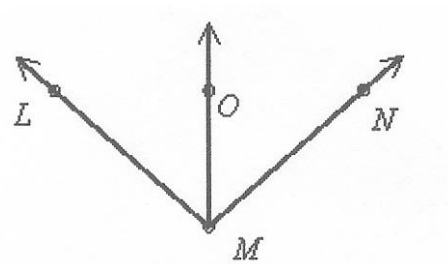
a.  $-4, 2, 8, 14, \dots$

b.  $9, 5, 1, -3, \dots$

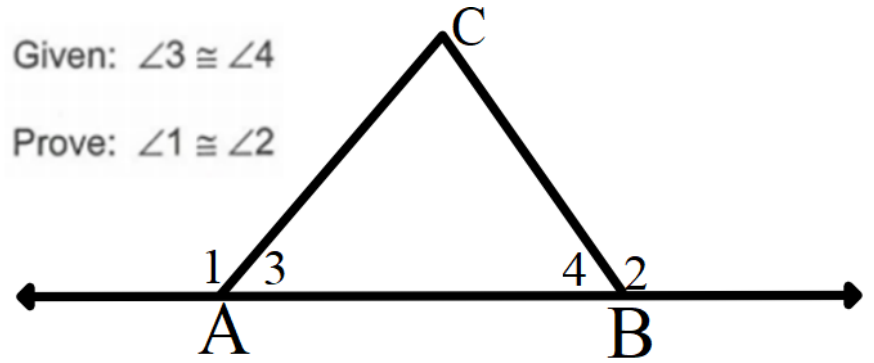
20. Draw and label segment  $AB$  with midpoint  $C$ .

Use your drawing from above: If  $\overline{AC} = 8x + 10$  and  $\overline{CB} = 10x - 6$  find the value of  $x$ ,  $AC$  and  $AB$ .

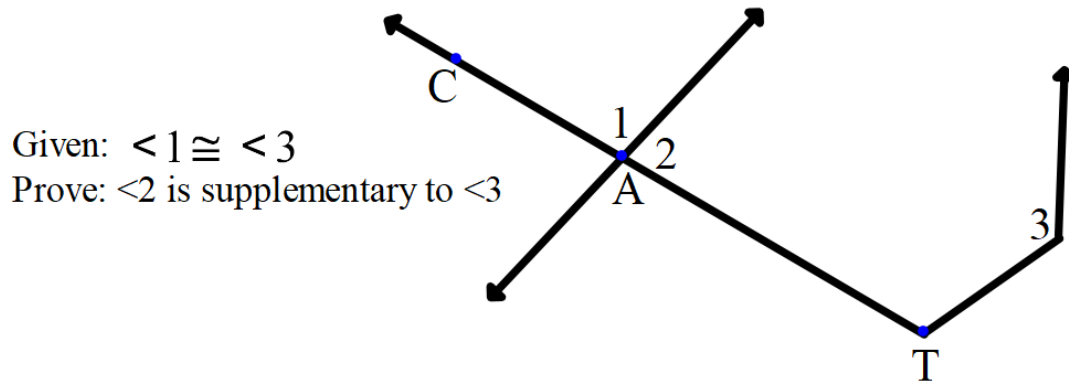
21.  $\overline{MO}$  bisects  $\angle LMN$ ,  $m\angle LMO = 42 - x$  and  $m\angle LMN = 6x + 22$ . Solve for  $x$  and find  $m\angle LMN$ . The diagram is not to scale.



22. Write a proof.

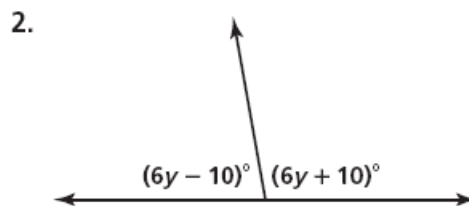
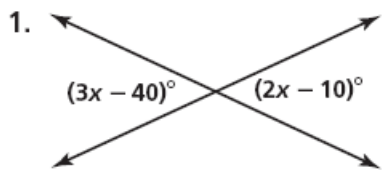


23. Complete the proof:



Statements	Reasons
1.	1.
2.	2. definition of congruent angles
3. $\angle 1$ and $\angle 2$ are a linear pair	3.
4.	4. Linear Pair Postulate
5.	5. Substitution
6. $\angle 2$ is supplementary to $\angle 3$	6.

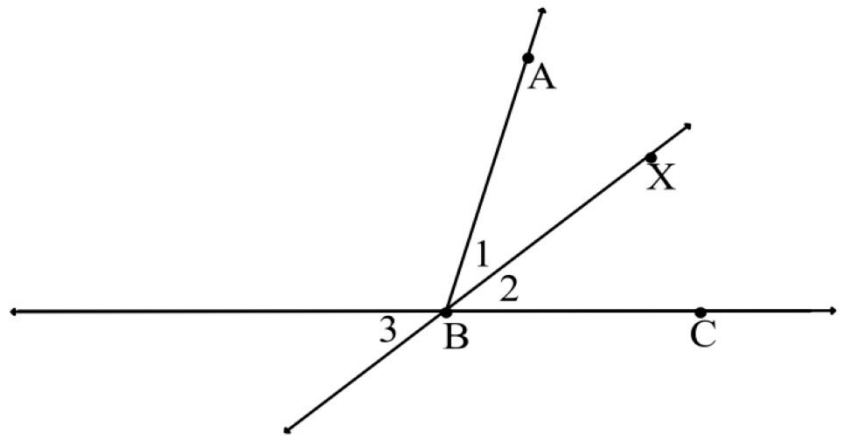
24. Find the value of the variable. Be sure to show your work.



25. Ray  $BD$  bisects  $\angle ABC$  so that  $m\angle DBC = (5x - 9)^\circ$  and  $m\angle ABD = (2x + 27)^\circ$ . What is  $x$ ? (hint: create a picture)

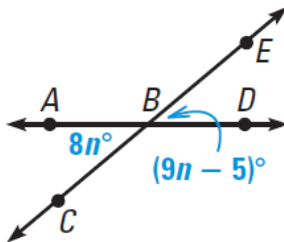
26. Write a proof:

Given:  $BX$  bisects  $\angle ABC$ ,  
 prove:  $\angle 1 \cong \angle 3$

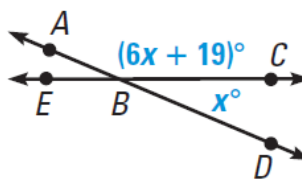


**xy** Using Algebra Find the value of the variable. Then use substitution to find  $m\angle ABC$ .

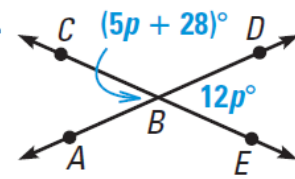
54.



55.



56.

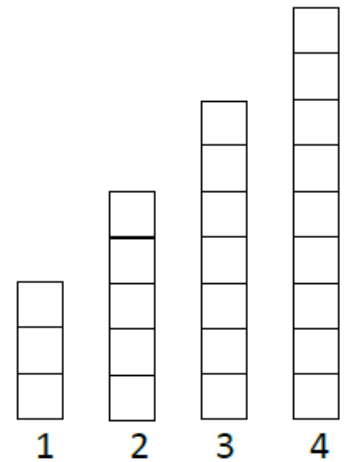


27. Find a counterexample for the following statement? "All even numbers are multiples of 4."

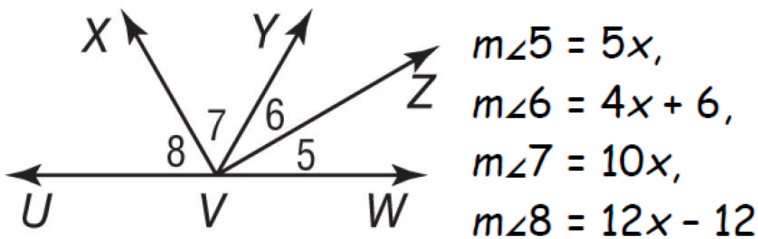
28. Scott has decided to add push-ups to his daily exercise routines. He has created a chart that shows how many push-ups he has done in a day.

a. How many push-ups will he have on day 6?

b. Make a conjecture about how many push-ups he has at any given day.



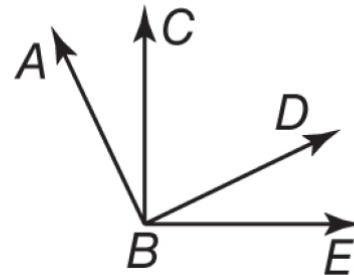
29. Find  $x$



**Example:** Write a two-column proof.

**Given:**  $\angle ABC$  and  $\angle CBD$  are complementary.  
 $\angle DBE$  and  $\angle CBD$  form a right angle.

**Prove:**  $\angle ABC \cong \angle DBE$



Complete each proof.

1. **Given:**  $\perp$ ;  
 $\angle 1$  and  $\angle 3$  are  
 complementary.

**Prove:**  $\angle 2 \cong \angle 3$

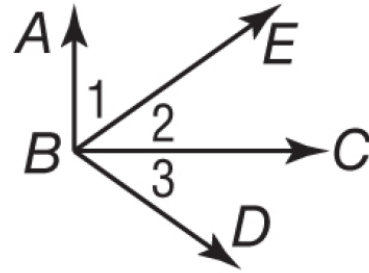
**Proof:**

**Statements**

- a.  $\perp$ ,  $\angle 1$  and  $\angle 3$  are complementary
- b. \_\_\_\_\_
- c.  $m\angle ABC = 90$
- d.  $m\angle ABC = m\angle 1 + m\angle 2$
- e.  $90 = m\angle 1 + m\angle 2$
- f.  $\angle 1$  and  $\angle 2$  are compliments
- g.  $\angle 2 \cong \angle 3$

**Reasons**

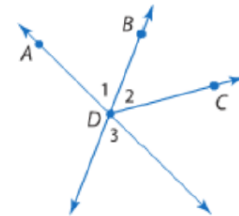
- a. \_\_\_\_\_
- b. Definition of  $\perp$
- c. Def. of right angle
- d. \_\_\_\_\_
- e. Substitution
- f. \_\_\_\_\_
- g. \_\_\_\_\_



7. Complete the following proof.

- Given:** bisects  
**Prove:**  $\angle 2 \cong \angle 3$

**Proof:**





Given:  $\angle B$  is a right angle,  
 $\angle C$  is a right angle,  
 $\angle 1 \cong \angle 4$

Prove:  $\angle 2 \cong \angle 3$

