

Books Never Written

Beginning Your Exercise Program by

57° 99° 119°

137° 173° 85° 99° 33°

Checking Your Homework by

33°

76°

156° 33° 47° 125° 28° 14°

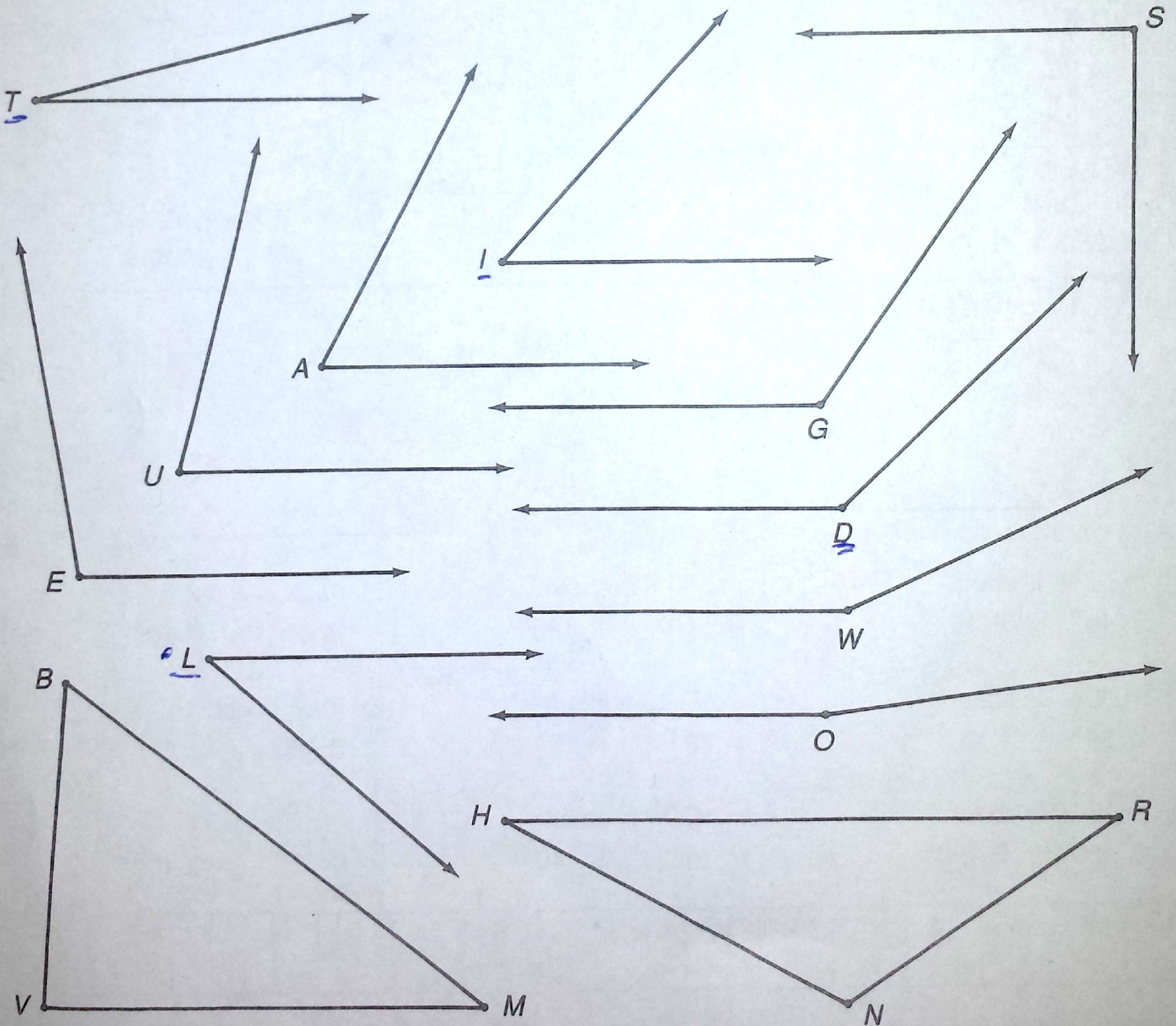
How to Lead the Band by

38° 62° 33° 90° 28° 62°

41° 173° 119° 125°

ABOVE ARE THE TITLES OF THREE "BOOKS NEVER WRITTEN." TO DECODE THE NAMES OF THEIR AUTHORS:

Measure each angle below and find your answer in the code. Each time the answer appears in the code, write the vertex letter of that angle above it.

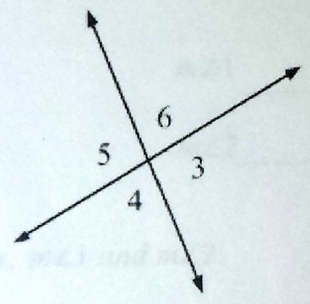


Vocabulary Review: Write in words and draw a diagram to define each of the following words.

1. Complementary Angles
2. Supplementary Angles
3. Adjacent Angles
4. Vertical Angles

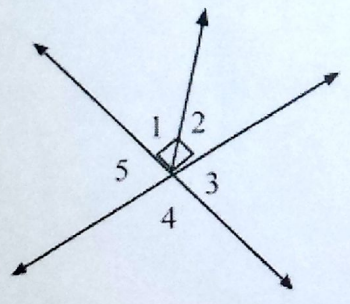
Use the figure to the right to answer the following questions.

$m\angle x$ means the measure of angle x



6. If $m\angle 5 = 95^\circ$, then $m\angle 6 =$ _____.
7. If $m\angle 3 = 115^\circ$, then $m\angle 6 =$ _____.
9. If $m\angle 6 = 2x$ and $m\angle 4 = 78$, then $x =$ _____.
10. If $m\angle 5 = 4x + 12$ and $m\angle 4 = x + 8$, then $x =$ _____. What is the measure of Angle 5? _____ What is the measure of angle 4? _____

Use the figure below to answer the following questions yes or no?



9. Are $\angle 1$ and $\angle 2$ complementary angles? _____
10. Are $\angle 2$ and $\angle 3$ adjacent angles? _____
11. Are $\angle 2$ and $\angle 4$ vertical angles? _____
12. Are $\angle 5$ and $\angle 3$ vertical angles? _____
13. Are $\angle 3$ and $\angle 4$ supplementary angles? _____

For each given angle find its complement and supplement. If none exists, write "none".

15. $m\angle A = 54^\circ$ comp: _____ supp: _____
16. $m\angle A = 95^\circ$ comp: _____ supp: _____
17. $m\angle A = 90^\circ$ comp: _____ supp: _____

Name: _____ Date: _____ Period: _____

18. $m\angle A = 112^\circ$ comp: _____ supp: _____

For questions 19 – 24 set up and label a diagram, solve for the variable, and then find the angles given.

19. $\angle 1$ and $\angle 2$ are supplementary angles. If $m\angle 1 = 3x + 12$ and $m\angle 2 = 7x - 32$, find x , $m\angle 1$ and $m\angle 2$.

$x =$ _____

Equation used to solve: _____

$m\angle 1$ _____

$m\angle 2$ _____

20. $\angle 1$ and $\angle 2$ are complementary. If $m\angle 1 = 6x + 2$ and $m\angle 2 = 4x + 8$, find x , $m\angle 1$ and $m\angle 2$.

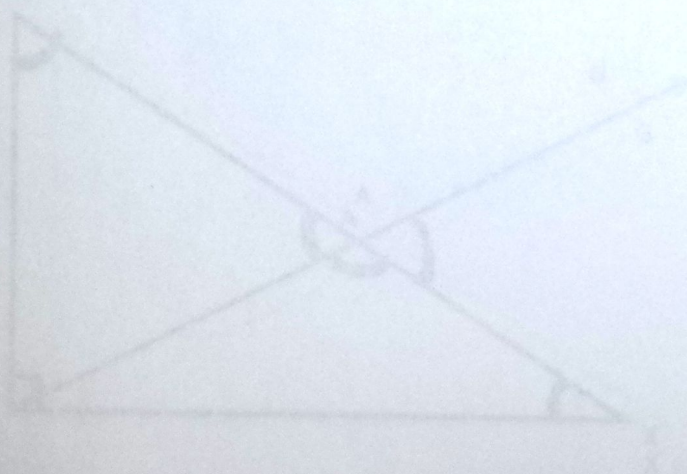
$x =$ _____

Equation used to solve: _____

$m\angle 1$ _____

$m\angle 2$ _____

3. Find the missing measures of all angles below and label them on the drawing.



$m\angle APM = 30^\circ$ and $m\angle PAM = 100^\circ$

$m\angle GAX$

$m\angle MAX$

$m\angle AXM$

$m\angle MAP$

$m\angle AMP$

$m\angle APM$

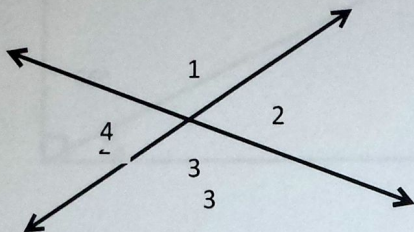
$m\angle AMX = \text{given}$

$m\angle GAP = \text{given}$

Name: _____

Date: _____ Period: _____

Find the missing angles in the following. Make sure you tell the reason that you know each measure.



$m\angle 1 = 135^\circ$ because given

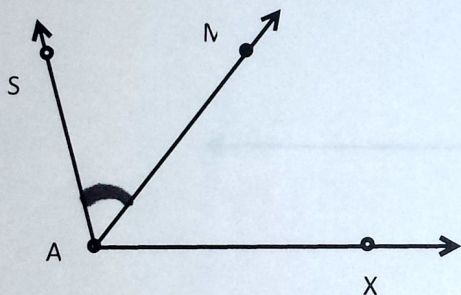
$m\angle 2 =$ _____ because _____

$m\angle 3 =$ _____ because _____

$m\angle 4 =$ _____ because _____

Is there more than one way to solve this? _____ Explain: _____

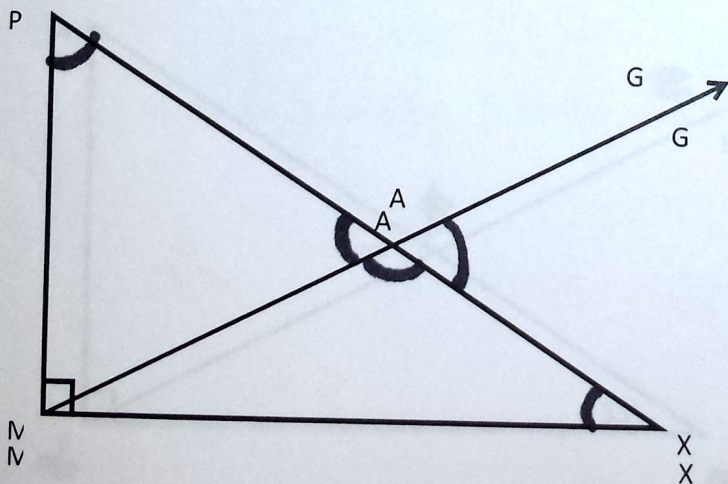
2. Use what you know to find the angle measures on the following problem.



$m\angle SAX$ is 100° and the $m\angle MAX$ is 70°

Find the measure of $\angle SAM$

3. Find the missing measures of all angles below and label them on the drawing.



$m\angle AMX = 30^\circ$ and $m\angle PAG = 100^\circ$

$m\angle GAX$

$m\angle MAX$

$m\angle AXM$

$m\angle MAP$

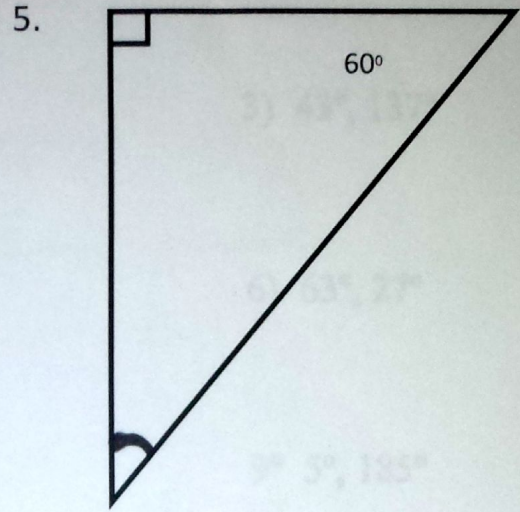
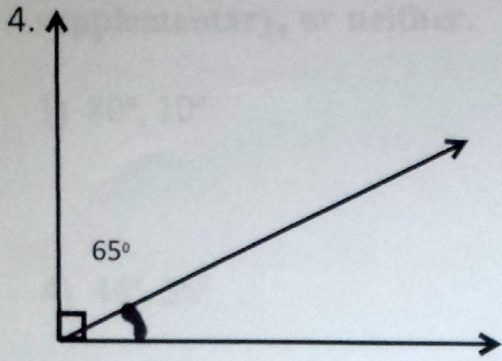
$m\angle AMP$

$m\angle APM$

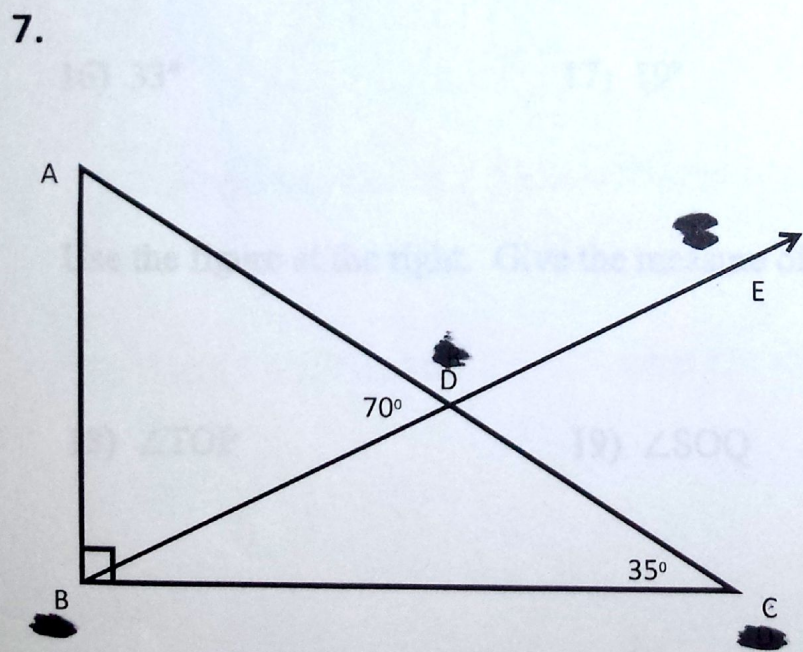
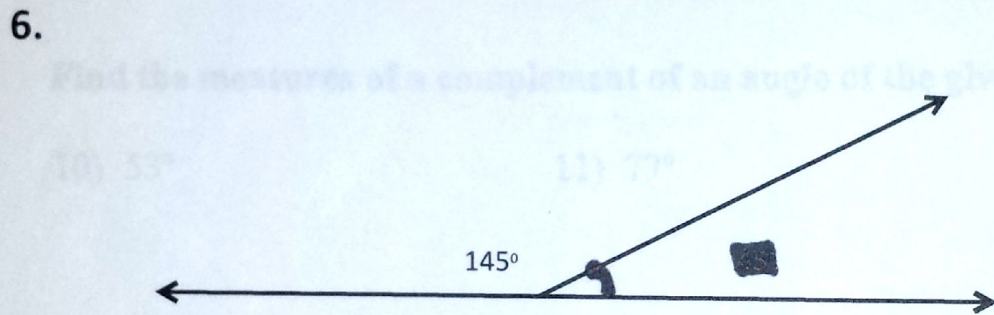
$m\angle AMX$ - given

$m\angle GAP$ - given

Find the missing measures below.

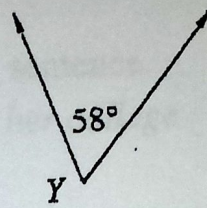


Find the missing measure below.



4

21) Find the measure of a complement of $\angle Y$.



22) Find the measure of a supplement of $\angle Y$.

Find the measure of a supplement of an angle of the given measure.

23) 27°

24) 94°

25) 114°

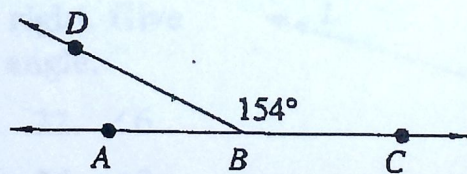
26) 166°

27) 81°

28) 135°

29) 19°

30) 48°



31) Find the measure of $\angle ABD$ in the figure at the above.

32) If $m\angle 1 = 38^\circ$ and $m\angle 2 = 52^\circ$, what can you conclude about $\angle 1$ and $\angle 2$?

Guided Practice

(5)

COMMUNICATION « Reading

- «1. Explain the meaning of *supplement* in the following sentence.
Elena works part time to earn money to supplement her college scholarship.
- «2. How is the meaning of the word *complementary* different from the meaning of *complimentary*?

Find each difference.

- | | | |
|----------------|---------------|---------------|
| 3. $90 - 74$ | 4. $90 - 15$ | 5. $90 - 53$ |
| 6. $180 - 166$ | 7. $180 - 82$ | 8. $180 - 59$ |

Tell whether two angles with the given measures are *complementary*, *supplementary*, or *neither*.

- | | | | |
|-------------------------|---------------------------|--------------------------|--------------------------|
| 9. $40^\circ, 50^\circ$ | 10. $125^\circ, 55^\circ$ | 11. $12^\circ, 88^\circ$ | 12. $90^\circ, 90^\circ$ |
|-------------------------|---------------------------|--------------------------|--------------------------|

Find the measure of a complement of an angle of the given measure.

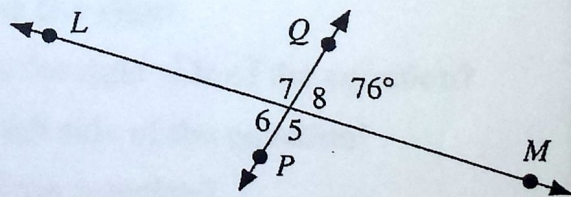
- | | | | |
|----------------|----------------|----------------|----------------|
| 13. 15° | 14. 79° | 15. 60° | 16. 33° |
|----------------|----------------|----------------|----------------|

Find the measure of a supplement of an angle of the given measure.

- | | | | |
|----------------|-----------------|----------------|----------------|
| 17. 41° | 18. 145° | 19. 88° | 20. 27° |
|----------------|-----------------|----------------|----------------|

Use the figure at the right. Give the measure of each angle.

- | | |
|----------------|----------------|
| 21. $\angle 5$ | 22. $\angle 6$ |
| 23. $\angle 7$ | 24. $\angle 8$ |



Exercises

Find the measure of a complement of an angle of the given measure.

1. 30°

2. 5°

3. 29°

4. 87°

Find the measure of a supplement of an angle of the given measure.

5. 10°

6. 65°

7. 102°

8. 90°

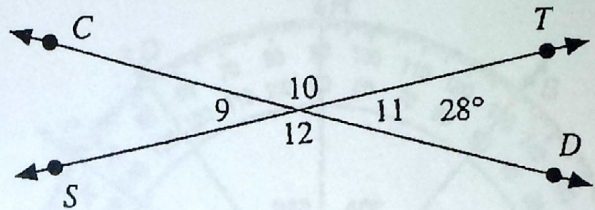
Use the figure at the right.
Give the measure of each angle.

9. $\angle 9$

10. $\angle 10$

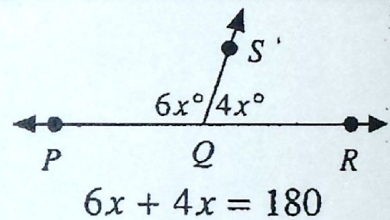
11. $\angle 11$

12. $\angle 12$



CONNECTING GEOMETRY AND ALGEBRA

Sometimes the measures of angles in a figure are given only as variable expressions. If you are given enough information, though, you can determine what the exact measures must be by using an equation.

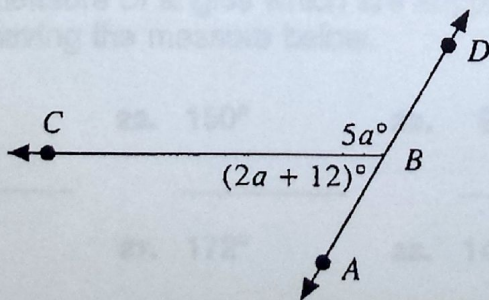


Exercises 19–22 refer to the figure at the right.

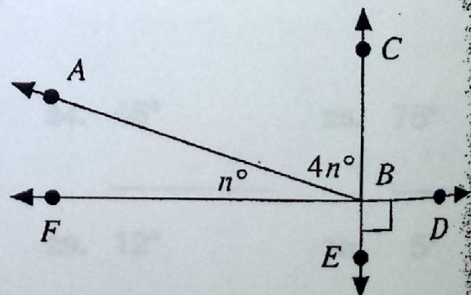
19. Why was the number 180 used as the right side of the equation?
20. Why are $6x$ and $4x$ added on the left side of the equation?
21. What value of x is the solution of the equation?
22. What are the measures of $\angle PQS$ and $\angle RQS$?

In each figure, find $m\angle ABC$.

23.



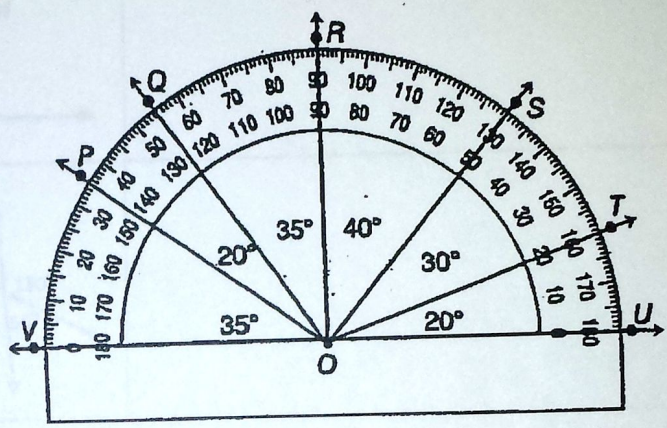
24.



Angles

Write the measure of each angle.
Write acute, right, obtuse, or straight for each angle.

1. $m \angle VOP =$ _____, _____
2. $m \angle VOQ =$ _____, _____
3. $m \angle VOR =$ _____, _____
4. $m \angle VOS =$ _____, _____
5. $m \angle VOT =$ _____, _____
6. $m \angle VOU =$ _____, _____
7. $m \angle UOT =$ _____, _____
8. $m \angle UOS =$ _____, _____
9. $m \angle UOR =$ _____, _____
10. $m \angle ROS =$ _____, _____



Write the measure of angles that are complementary to angles having the measures below.

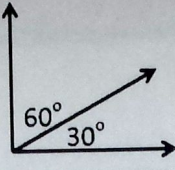
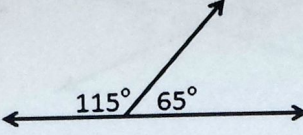
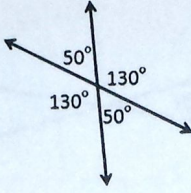
- | | | | | |
|----------------|----------------|----------------|----------------|----------------|
| 11. 30° | 12. 70° | 13. 25° | 14. 15° | 15. 18° |
| _____ | _____ | _____ | _____ | _____ |
| 16. 49° | 17. 82° | 18. 55° | 19. 3° | 20. 1° |
| _____ | _____ | _____ | _____ | _____ |

Write the measure of angles which are supplementary to angles having the measure below.

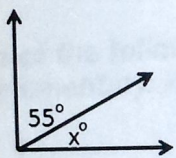
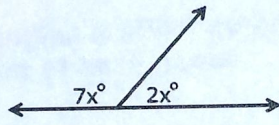
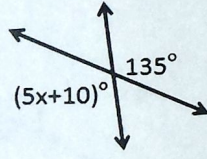
- | | | | | |
|-----------------|-----------------|-----------------|----------------|----------------|
| 21. 60° | 22. 150° | 23. 90° | 24. 45° | 25. 75° |
| _____ | _____ | _____ | _____ | _____ |
| 26. 109° | 27. 172° | 28. 145° | 29. 12° | 30. 5° |
| _____ | _____ | _____ | _____ | _____ |

Finding the Missing Angle Notes

Name _____

Vocabulary	Picture	Equation
Complementary Angles	Two angles whose sum is 90° 	
Supplementary Angles	Two angles whose sum is 180° 	
Vertical Angles	Two angles that are opposite each other when two lines cross. They share the same vertex. Their measures are congruent. 	

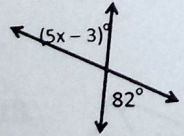
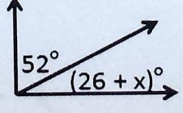
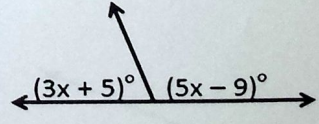
Write and solve an equation to find the missing measure. (Not drawn to scale)

<p>1)</p> 	<p>2)</p> 	<p>3)</p> 
---	---	--



Pause the video and try these on your own!
Then press play and check your answers with a color pen

Write and solve an equation to find the missing measure. (Not drawn to scale)

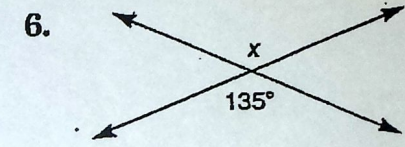
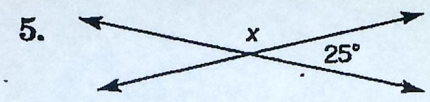
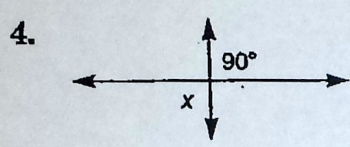
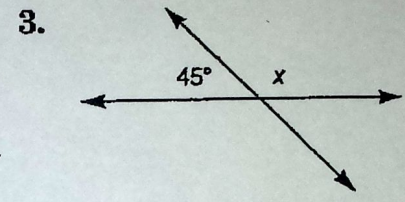
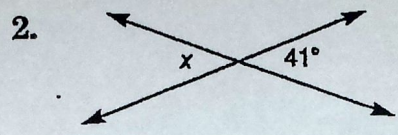
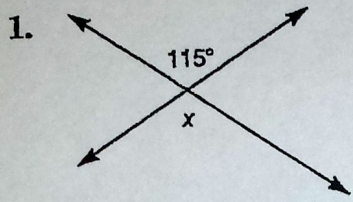
<p>1)</p> 	<p>2)</p> 	<p>3)</p> 
---	---	---

8

Practice Worksheet 12-3

Angle Relationships

Find the value of x in each figure.



Each of the following pairs of angles is either complementary or supplementary. Find the measure of each angle.

