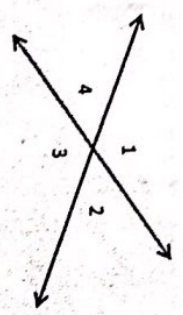


Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

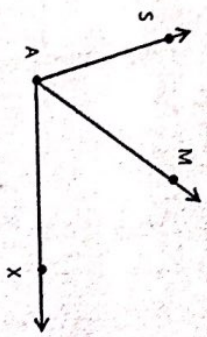
Find the missing angles in the following. Make sure you tell the reason that you know each measure.



$m\angle 1 = 135^\circ$  because \_\_\_\_\_ given \_\_\_\_\_  
 $m\angle 2 =$  \_\_\_\_\_ because \_\_\_\_\_  
 $m\angle 3 =$  \_\_\_\_\_ because \_\_\_\_\_  
 $m\angle 4 =$  \_\_\_\_\_ because \_\_\_\_\_

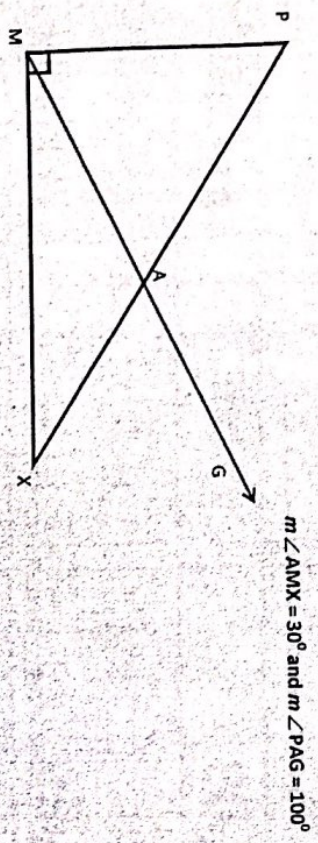
Is there more than one way to solve this? \_\_\_\_\_ Explain: \_\_\_\_\_

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

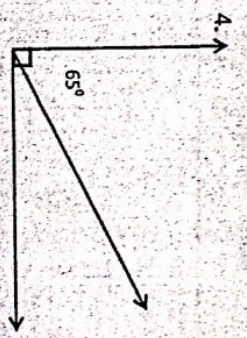


$m\angle SAX$  is  $100^\circ$  and the  $m\angle MAX$  is  $70^\circ$   
 Find the measure of  $\angle SAM$

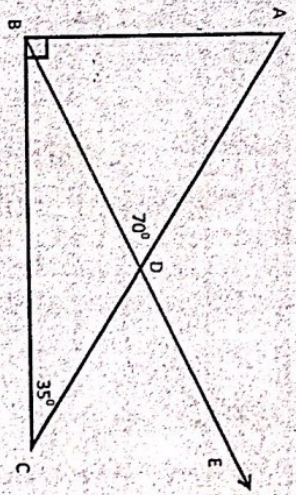
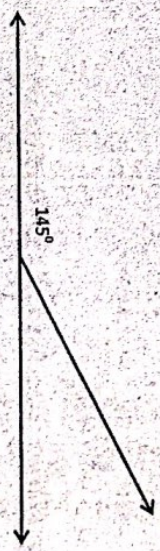
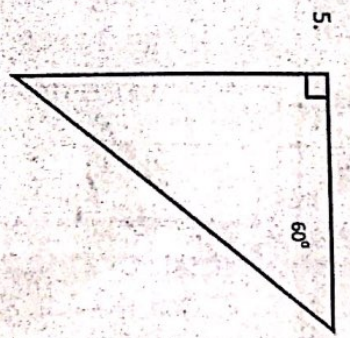
3. Find the missing measures of all angles below and label them on the drawing.



Find the missing measures below.



Find the missing measure below.



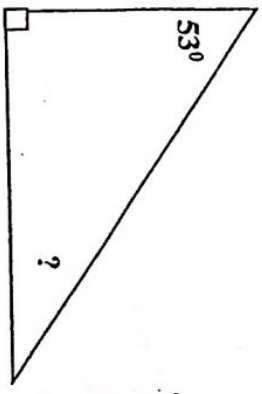
Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

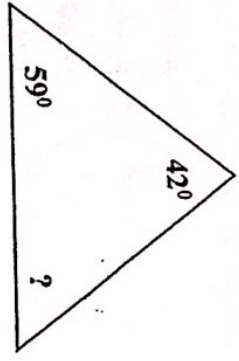
Fill in the missing information for each triangle named.

TRIANGLE	Measure of Angle 1	Measure of Angle 2	Measure of Angle 3	Sum of all Angles	Name of Triangle by Angles
Triangle MAD		43°			Right Δ
Triangle ZEN	57°			102°	
Triangle POD		60°		60°	Acute Δ
Triangle CAT	35°			45.5°	
Triangle CRY		72°		72°	

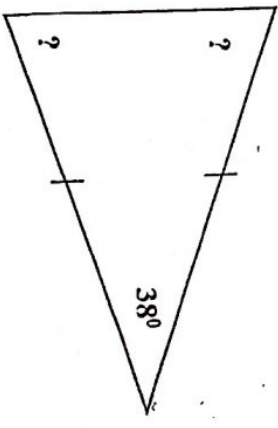
Identify the missing measurement for each triangle below and then classify the triangle by its angles. DO NOT USE A PROTRACTOR. (Triangles shown are not to scale.)



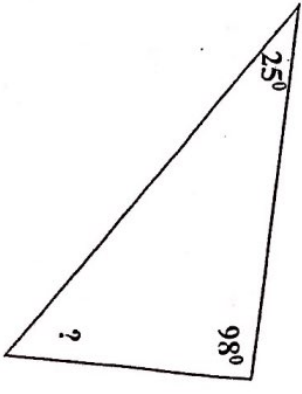
Missing Measure: \_\_\_\_\_  
Name: \_\_\_\_\_



Missing Measure: \_\_\_\_\_  
Name: \_\_\_\_\_



Missing Measures: \_\_\_\_\_  
Name: \_\_\_\_\_



Missing Measure: \_\_\_\_\_  
Name: \_\_\_\_\_

**Page 2**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Complementary and Supplementary Angles

Directions: Solve for the missing angle measure or variable beginning at "START" follow the path that leads you to the correct answer.

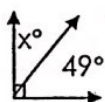
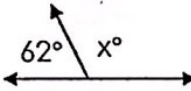
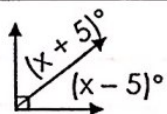
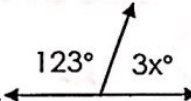
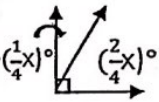
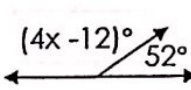
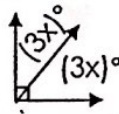
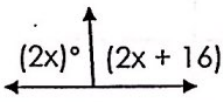
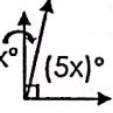
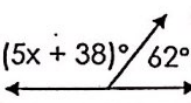
<p>☆ <b>START</b> ☆</p>	<p><math>x = 66</math></p>	<p><math>x = 30</math></p>	<p><math>x = 120</math></p>	<p><math>x = 8</math></p> <p><b>END</b></p>
<p><math>x = 156</math></p>	<p><math>x = 60</math></p>	<p><math>x = 43</math></p>	<p><math>x = 45</math></p>	<p><math>x = 10</math></p> <p><b>END</b></p>
<p><math>x = 45</math></p>	<p><math>x = 57</math></p>	<p><math>x = 109</math></p>	<p><math>x = 60</math></p>	<p><math>x = 9</math></p> <p><b>END</b></p>
<p><math>x = 65</math></p>	<p><math>x = 17</math></p>	<p><math>x = 77</math></p>	<p><math>x = 28</math></p>	<p><math>x = 29</math></p> <p><b>END</b></p>

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Complementary and Supplementary Angles

Directions: Solve for  $x$  using your knowledge of complementary and supplementary angles. Find the problem number on the coloring page and shade in the enclosed region using the color assigned to the solution.

1. 	$x = 41$ : blue	$x = 131$ : green	$x = 51$ : orange
2. 	$x = 22$ : red	$x = 118$ : green	$x = 28$ : yellow
3. 	$x = 40$ : blue	$x = 45$ : purple	$x = 90$ : orange
4. 	$x = 19$ : orange	$x = 41$ : green	$x = 57$ : red
5. 	$x = 120$ : blue	$x = 22.5$ : green	$x = 30$ : orange
6. 	$x = 61$ : green	$x = 29$ : red	$x = 35$ : purple
7. 	$x = 10$ : blue	$x = 15$ : red	$x = 30$ : yellow
8. 	$x = 49$ : red	$x = 37$ : orange	$x = 41$ : blue
9. 	$x = 30$ : green	$x = 18$ : blue	$x = 15$ : red
10. 	$x = 16$ : purple	$x = 31.2$ : orange	$x = 56$ : green

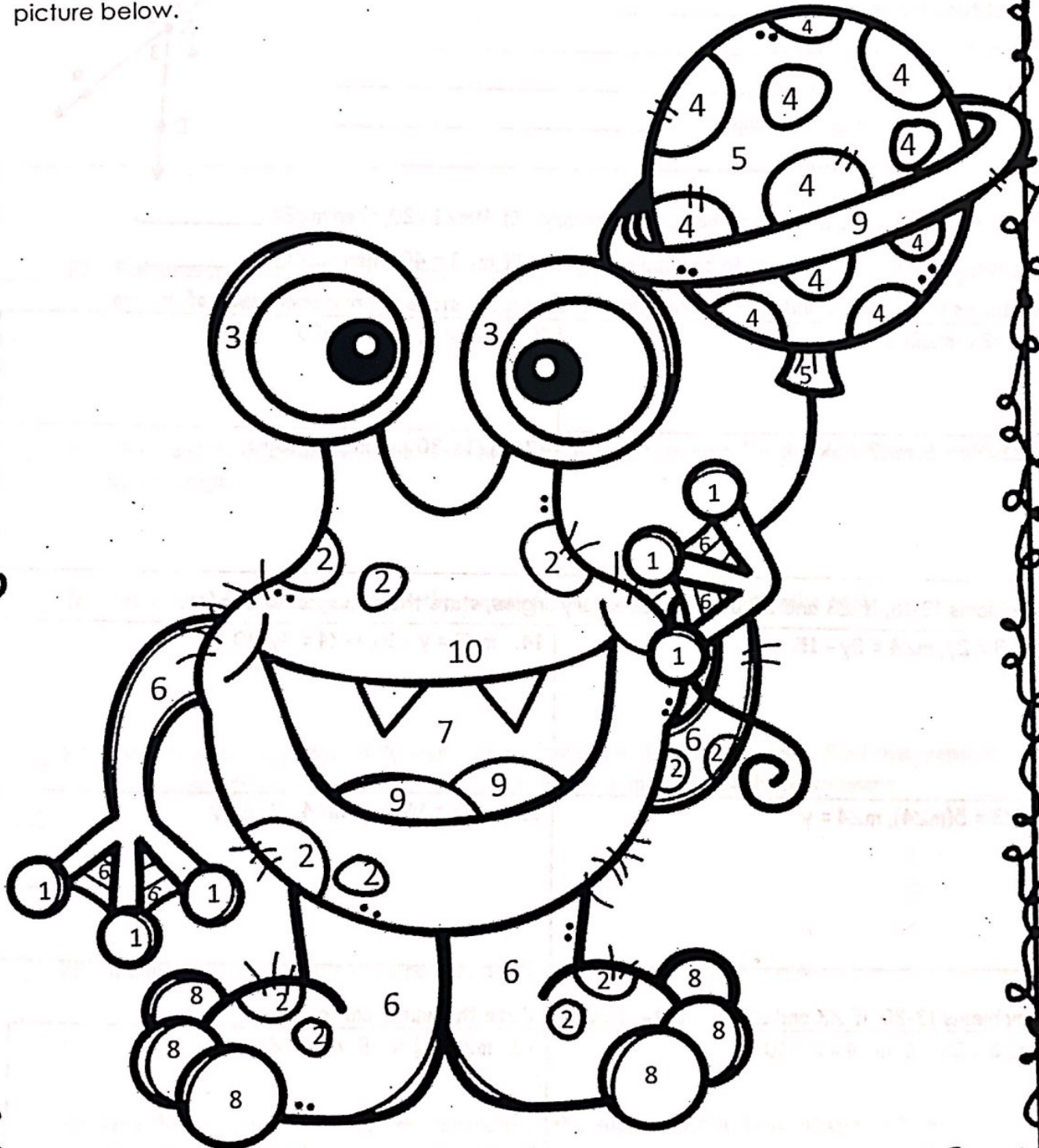
Page 4

Name: \_\_\_\_\_

Date: \_\_\_\_\_

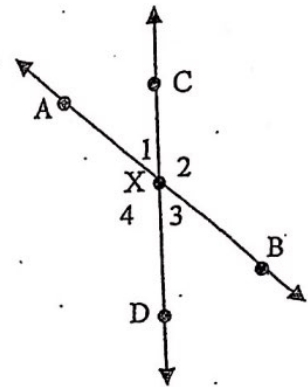
## Complementary and Supplementary Angles

Directions: The color that goes with each answer should be used to shade in the picture below.



Complementary, Supplementary, and Vertical Angle Problem Solving - Practice

Name the figures described. Use the figure for 1-6.



1. Two acute angles. \_\_\_\_\_
2. Two obtuse angles. \_\_\_\_\_
3. Two pairs of vertical angles. \_\_\_\_\_
4. Four pairs of adjacent angles. \_\_\_\_\_
5. Four pairs of supplementary angles. \_\_\_\_\_
6. Two supplements of  $\angle AXC$ . \_\_\_\_\_
7. Suppose  $\angle 1$  and  $\angle 2$  are known to be complementary. If  $m\angle 1 = 20$ , then  $m\angle 2 =$  \_\_\_\_\_
8. Suppose  $\angle 3$  and  $\angle 4$  are known to be supplementary. If  $m\angle 3 = 40$ , then  $m\angle 4 =$  \_\_\_\_\_

For problems 9-12, if  $m\angle 1$  and  $m\angle 2$  are complementary angles, state the numerical value of  $x$ .

9. $m\angle 1 = 2x, m\angle 2 = 3x$	10. $m\angle 1 = x, m\angle 2 = x + 20$
11. $m\angle 1 = 2x - 6, m\angle 2 = 6x + 8$	12. $m\angle 1 = 30 + x, m\angle 2 = 40 + x$

For problems 13-16, if  $\angle 3$  and  $\angle 4$  are supplementary angles, state the numerical value of  $y$ .

13. $m\angle 3 = 2y, m\angle 4 = 3y - 15$	14. $m\angle 3 = y + 10, m\angle 4 = 3y - 10$
15. $m\angle 3 = 5(m\angle 4), m\angle 4 = y$	16. $m\angle 3 = 160 - y, m\angle 4 = 170 - y$

For problems 17-20, if  $\angle 3$  and  $\angle 4$  are vertical angles, state the numerical value of  $x$ .

17. $m\angle 3 = 3x - 6, m\angle 4 = x + 10$	18. $m\angle 3 = \frac{1}{2}x + 9, m\angle 4 = 2x + 5$
19. $m\angle 3 = 5x - 10, m\angle 4 = 3x + 20$	20. $m\angle 3 = -5 - 2x, m\angle 4 = 4x - 20$

21. Two angles are supplementary. The measure of one is five times the measure of the other angle. Find each angle. \_\_\_\_\_

22. Two angles are complementary. The measure of one is  $\frac{4}{5}$  the measure of the other. Find each angle. \_\_\_\_\_

Solve.

\_\_\_\_\_ 23. The measure of an angle is 30 more than its complement. Find the measure of the angle and its complement.

\_\_\_\_\_ 25. The measure of an angle is the same as the measure of its complement. Find the measure of the angle.

\_\_\_\_\_ 26. The measure of an angle is  $\frac{2}{3}$  the measure of its supplement. Find the angle.

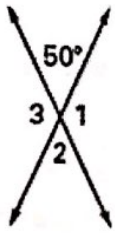
\_\_\_\_\_ 27. The measure of an angle is 20 less than the measure of its supplement. Find the measure of the angle, the measure of its supplement, and the measure of its complement.

\_\_\_\_\_ 28. The measure of an angle is twice that of its supplement. Find the angle.

\_\_\_\_\_ 29. Find the difference between the measure of the supplement and the measure of the complement of an angle with a measure of 60.

Find the measure of the missing angles. Be sure to set up an equation and solve. Show all of your work.

20)



$m\angle 1 =$  \_\_\_\_\_

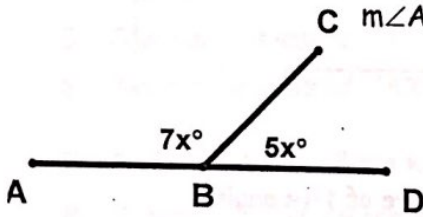
$m\angle 2 =$  \_\_\_\_\_

$m\angle 3 =$  \_\_\_\_\_

21)

$m\angle CBD =$  \_\_\_\_\_

$m\angle ABC =$  \_\_\_\_\_

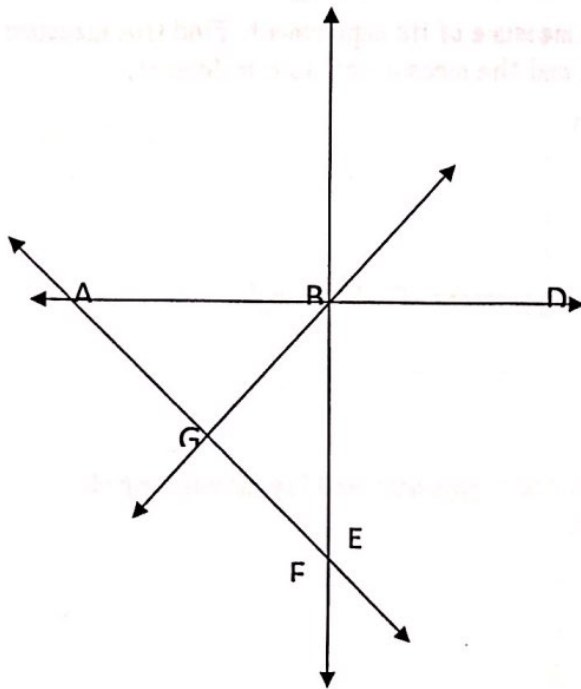


22)  $\angle B$  and  $\angle C$  are supplementary angles. If  $m\angle B = 4x + 3$  and  $m\angle C = 6x - 8$ , what is the value of  $x$ ?

23)  $\angle F$  and  $\angle G$  are complementary angles. If  $\angle F = 6(x - 6)$  and  $\angle G = 2(2x + 15)$ , what is the value of  $x$ ?

24)  $\angle A$  and  $\angle B$  are vertical angles. If  $\angle A = 5x + 12$  and  $\angle B = 3x + 18$

25)



a) Name 2 complementary angles.

b) Name 2 supplementary angles.

c) If  $\angle E = 2(x - 2)$  and  $\angle F = (4x + 8)$ , what is the value of each angle?

page 8



Name : \_\_\_\_\_

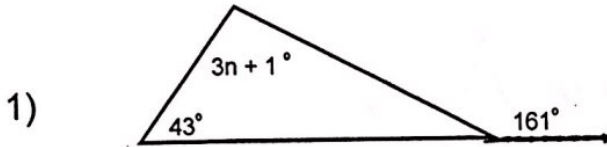
Score : \_\_\_\_\_

Teacher : \_\_\_\_\_

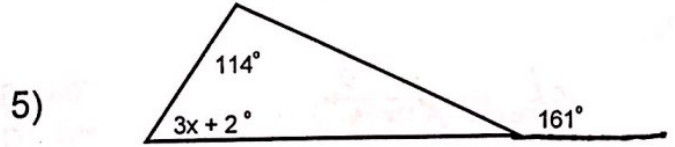
Date : \_\_\_\_\_

### Exterior Angle Theorem

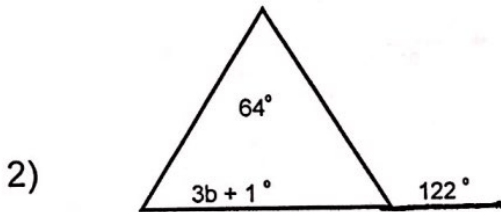
Solve for the given variable.



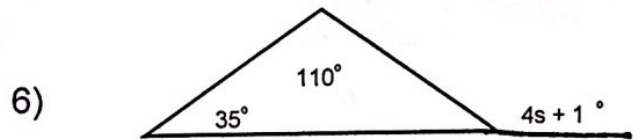
$n = \underline{\hspace{2cm}}$



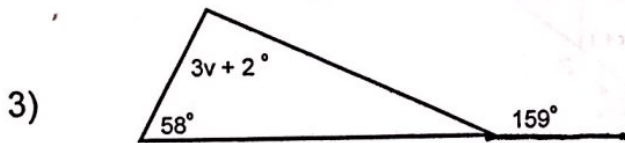
$x = \underline{\hspace{2cm}}$



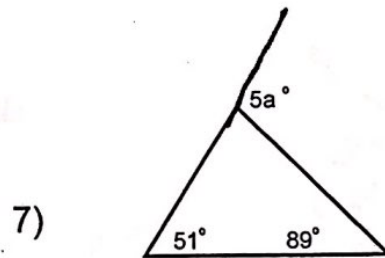
$b = \underline{\hspace{2cm}}$



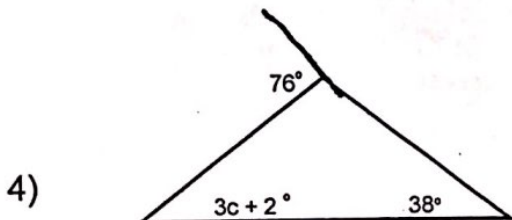
$s = \underline{\hspace{2cm}}$



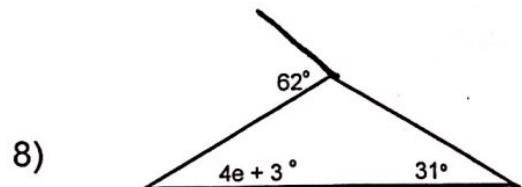
$v = \underline{\hspace{2cm}}$



$a = \underline{\hspace{2cm}}$

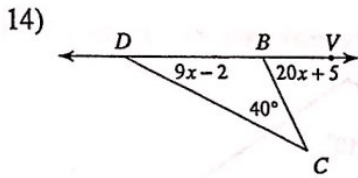
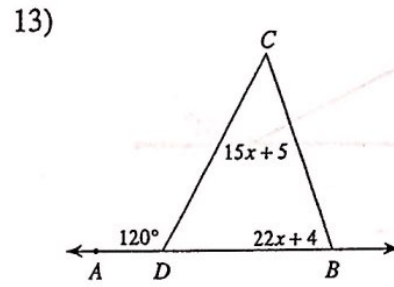
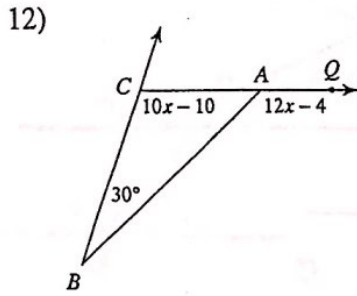
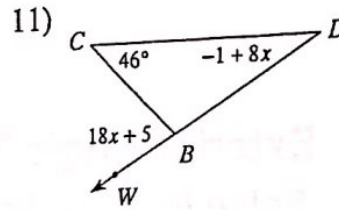
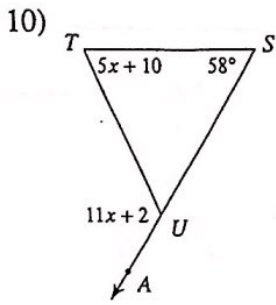


$c = \underline{\hspace{2cm}}$



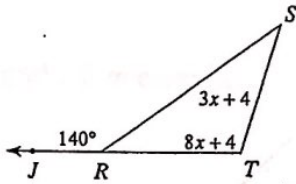
$e = \underline{\hspace{2cm}}$



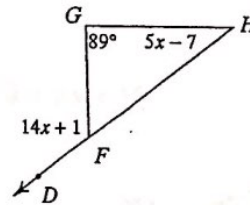


Find the measure of the angle indicated.

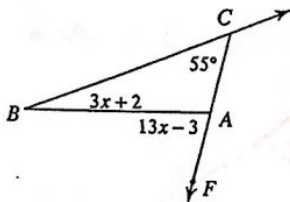
15) Find  $m\angle S$ .



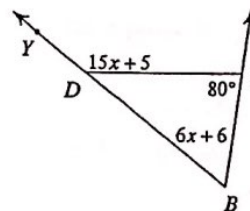
16) Find  $m\angle H$ .



17) Find  $m\angle FAB$ .



18) Find  $m\angle YDC$ .

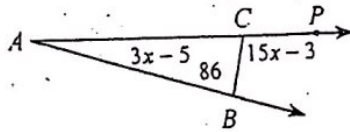


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# Assignment

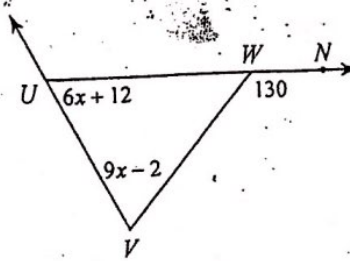
Find the measure of the angle indicated.

1) Find  $m\angle A$ .



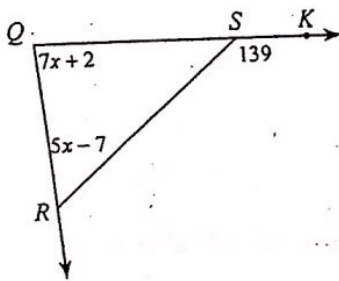
- A)  $22^\circ$       B)  $21^\circ$   
 C)  $16^\circ$       D)  $102^\circ$

2) Find  $m\angle V$ .



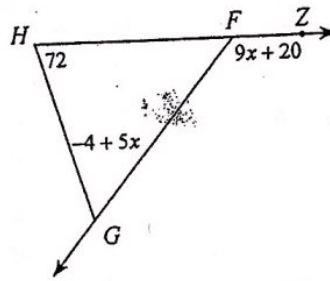
- A)  $85^\circ$       B)  $60^\circ$   
 C)  $59^\circ$       D)  $70^\circ$

3) Find  $m\angle Q$ .



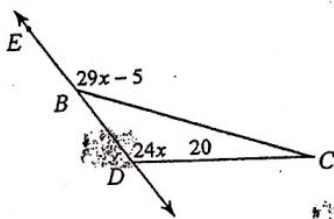
- A)  $69^\circ$       B)  $84^\circ$   
 C)  $86^\circ$       D)  $53^\circ$

4) Find  $m\angle FGH$ .



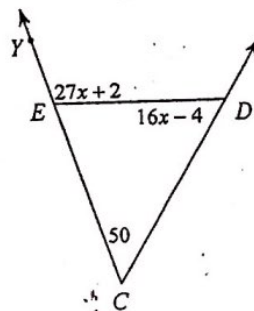
- A)  $56^\circ$       B)  $128^\circ$   
 C)  $66^\circ$       D)  $63^\circ$

5) Find  $m\angle EBC$ .

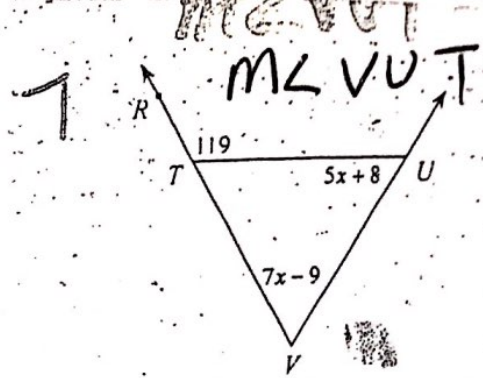


- A)  $120^\circ$       B)  $154^\circ$   
 C)  $112^\circ$       D)  $140^\circ$

6) Find  $m\angle YED$ .

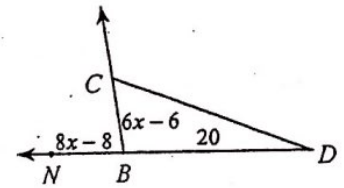


- A)  $112^\circ$       B)  $60^\circ$   
 C)  $91^\circ$       D)  $110^\circ$



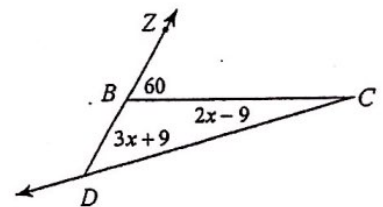
- A)  $58^\circ$       B)  $53^\circ$   
 C)  $61^\circ$       D)  $65^\circ$

9) Find  $m\angle BCD$ .



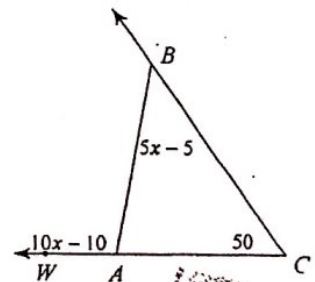
- A)  $80^\circ$       B)  $60^\circ$   
 C)  $69^\circ$       D)  $70^\circ$

11) Find  $m\angle C$ .



- A)  $15^\circ$       B)  $23^\circ$   
 C)  $22^\circ$       D)  $45^\circ$

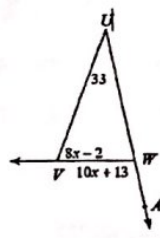
13) Find  $m\angle ABC$ .



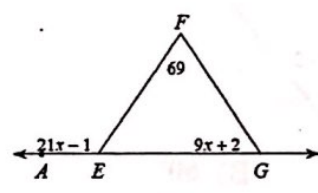
- A)  $100^\circ$       B)  $50^\circ$   
 C)  $42^\circ$       D)  $41^\circ$

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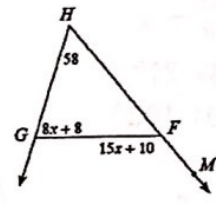
22) Find  $m\angle WVU$ .



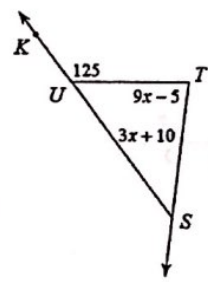
21) Find  $m\angle FGE$ .



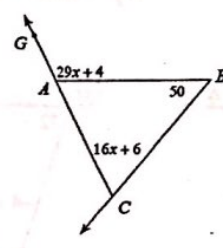
23) Find  $m\angle FGH$ .



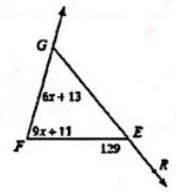
19) Find  $m\angle T$ .



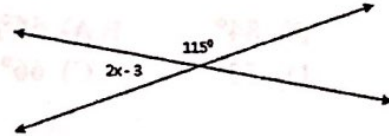
20) Find  $m\angle BCA$ .



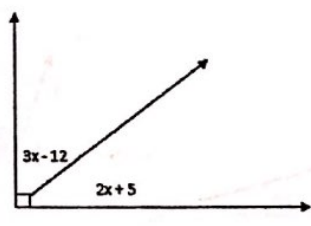
24) Find  $m\angle F$ .



Find the missing measures on all angles below:



<p>1.</p> <p>A triangle with interior angles <math>40^\circ</math>, <math>45^\circ</math>, and an unknown angle marked with a question mark.</p>	<p>2. In a triangle the measure of two of the angles is <math>35^\circ</math> and <math>65^\circ</math>. Find the measure of the third angle.</p>
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