

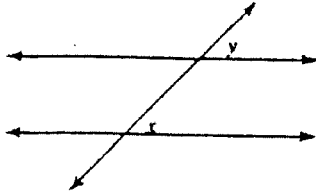
# HOMEWORK 13.2

Name Key  
Date \_\_\_\_\_ Period \_\_\_\_\_

## Parallel Lines and Transversals

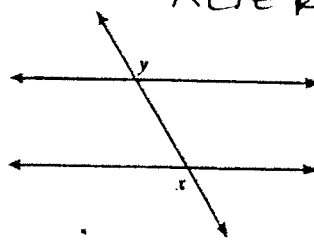
Identify each pair of angles as corresponding, alternate interior, alternate exterior, or vertical.

1) CORRESPONDING

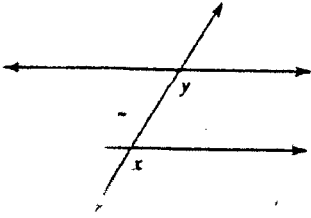


2)

ALTERNATE EXTERIOR

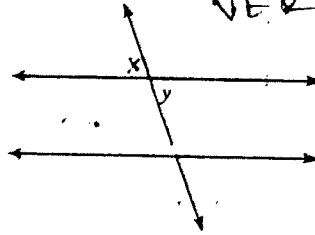


3) CORRESPONDING



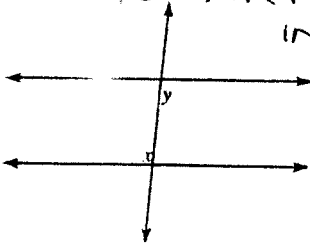
4)

VERTICAL



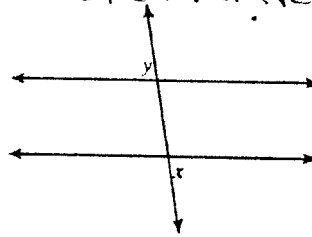
5)

ALTERNATE INTERIOR

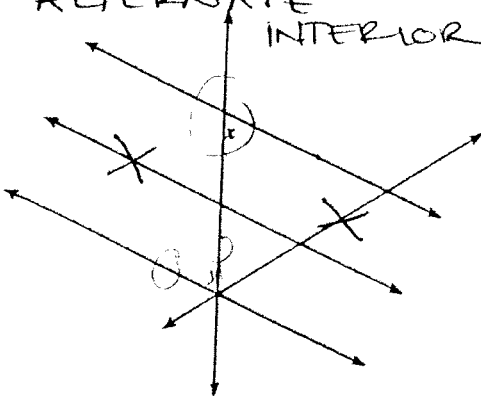


6)

ALTERNATE EXTERIOR

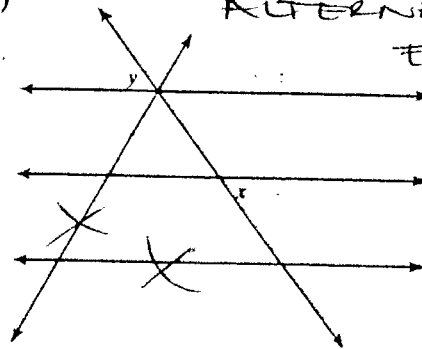


7) ALTERNATE INTERIOR



8)

ALTERNATE EXTERIOR



## Angles Formed by Parallel Lines

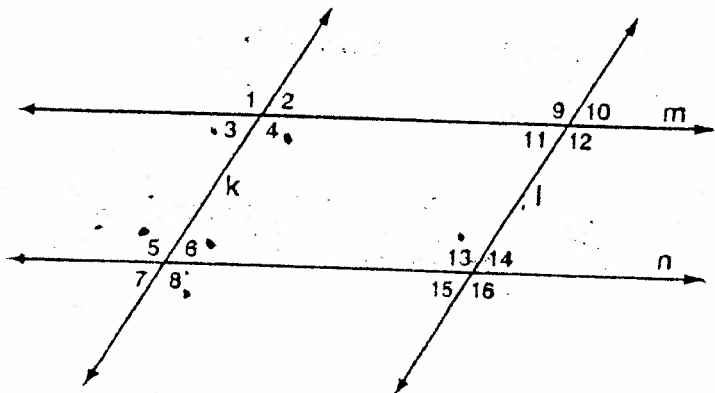
If two parallel lines are cut by a transversal, the resulting angles are either congruent or supplementary.

congruent angles  
 vertical angles  
 corresponding angles  
 alternate interior angles  
 alternate exterior angles

supplementary angles  
 adjacent angles  
 same-side interior angles  
 same-side exterior angles

Find the measure of the angles using the given information. Match the measure with its corresponding letter and fill in the blanks to reveal the only non-presidents to appear on U.S. currency.

- |  |  |
|--|--|
| 1. If $\angle 1 = 45^\circ$ , $\angle 2 =$ <u>135</u>    | 9. If $\angle 11 = 65^\circ$ , $\angle 14 =$ <u>65</u>   |
| 2. If $\angle 3 = 120^\circ$ , $\angle 6 =$ <u>120</u>   | 10. If $\angle 9 = 125^\circ$ , $\angle 15 =$ <u>55</u>  |
| 3. If $\angle 13 = 130^\circ$ , $\angle 16 =$ <u>130</u> | 11. If $\angle 10 = 52^\circ$ , $\angle 3 =$ <u>52</u>   |
| 4. If $\angle 9 = 110^\circ$ , $\angle 13 =$ <u>110</u>  | 12. If $\angle 7 = 128^\circ$ , $\angle 14 =$ <u>128</u> |
| 5. If $\angle 9 = 110^\circ$ , $\angle 14 =$ <u>70</u>   | 13. If $\angle 8 = 113^\circ$ , $\angle 13 =$ <u>113</u> |
| 6. If $\angle 10 = 60^\circ$ , $\angle 15 =$ <u>60</u>   | 14. If $\angle 12 = 140^\circ$ , $\angle 4 =$ <u>140</u> |
| 7. If $\angle 4 = 75^\circ$ , $\angle 5 =$ <u>75</u>     | 15. If $\angle 16 = 100^\circ$ , $\angle 3 =$ <u>80</u>  |
| 8. If $\angle 4 = 75^\circ$ , $\angle 6 =$ <u>105</u>    | 16. If $\angle 9 = 100^\circ$ , $\angle 1 =$ <u>100</u>  |
|  | 17. If $\angle 6 = 115^\circ$ , $\angle 11 =$ <u>115</u> |



$m \parallel n$

$k \parallel l$

A	B	E	F	H	I	J	K	L	M	N	O	R	S	T	U	Y
52°	55°	60°	65°	70°	75°	80°	100°	105°	110°	113°	115°	120°	128°	130°	135°	140°

S U S A N      B A N T H O N Y  
 12    1    12    11    13            10    11    13    3    5    17    13    14

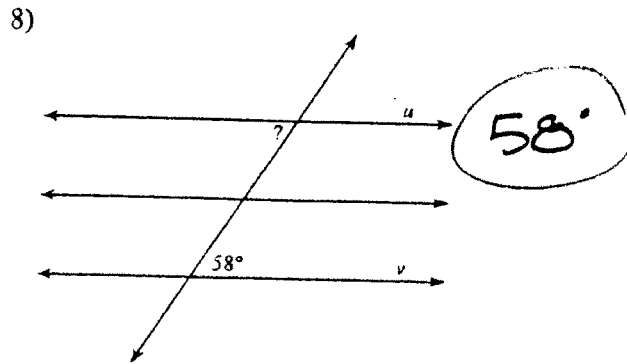
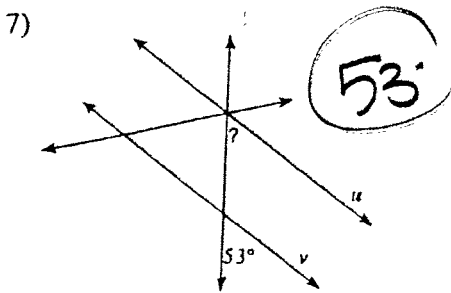
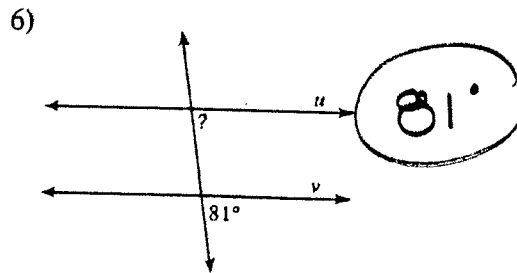
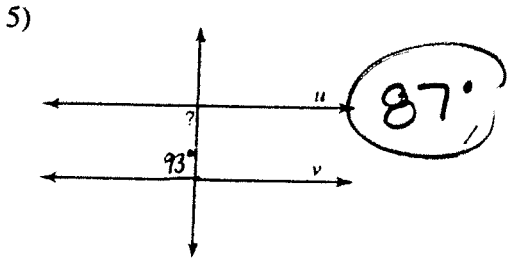
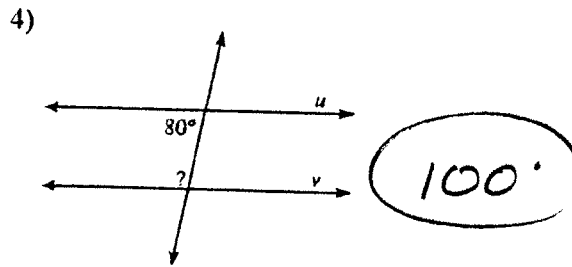
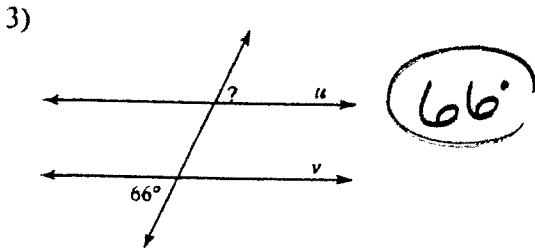
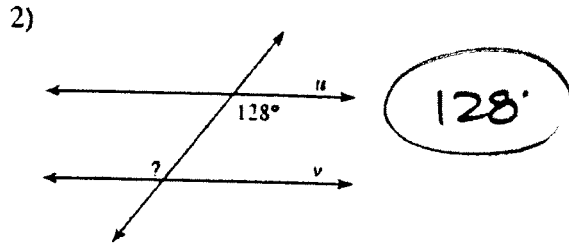
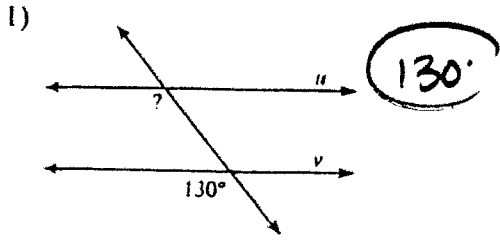
B E N J A M I N <sup>AND</sup> F R A N K L I N  
 10    6    13    15    11    4    7    13            9    2    11    13    18    8    7    13

# 13.2B

## Proving Lines Parallel

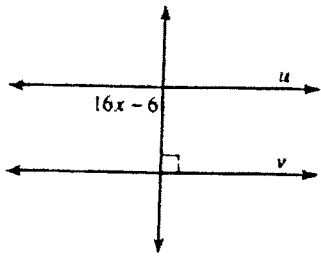
Name KEY  
Date \_\_\_\_\_ Period \_\_\_\_\_

Find the measure of the indicated angle. Circle your answer!



Find the value of  $x$ . Circle your answer!

9)

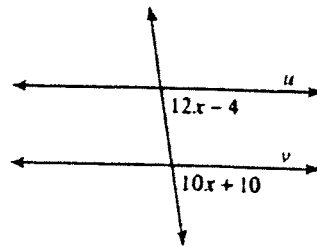


$$16x - 6 = 90$$

$$16x = 96$$

$$x = 6$$

10)

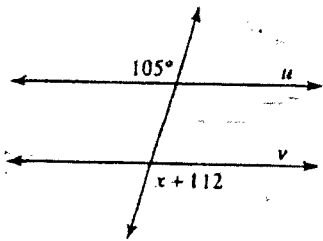


$$12x - 4 = 10x + 10$$

$$2x = 14$$

$$x = 7$$

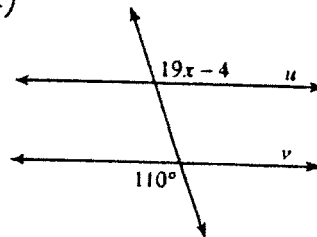
11)



$$x + 112 = 105$$

$$x = -7$$

12)

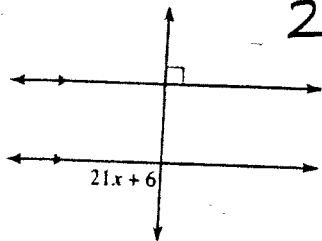


$$19x - 4 = 110$$

$$19x = 114$$

$$x = 6$$

13)



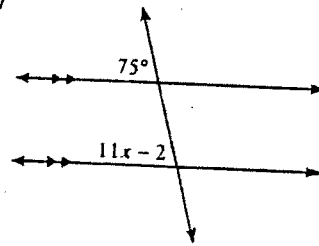
$$21x + 6 = 90$$

$$21x = 96$$

$$7x = 32$$

$$x = 4\frac{4}{7}$$

14)

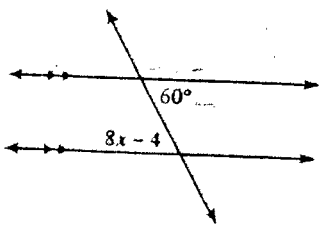


$$11x - 2 = 75$$

$$11x = 77$$

$$x = 7$$

15)

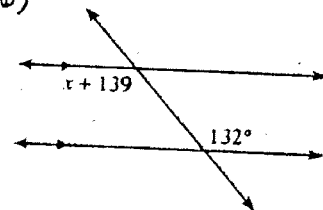


$$8x - 4 = 60$$

$$8x = 64$$

$$x = 8$$

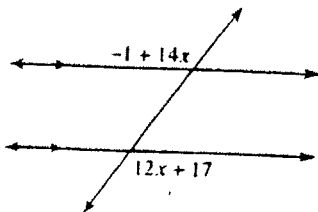
16)



$$x + 139 = 132$$

$$x = -7$$

17)

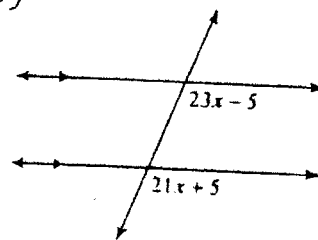


$$-1 + 14x = 12x + 17$$

$$2x = 18$$

$$x = 9$$

18)



$$23x - 5 = 21x + 5$$

$$2x = 10$$

$$x = 5$$

NAME \_\_\_\_\_

DATE \_\_\_\_\_

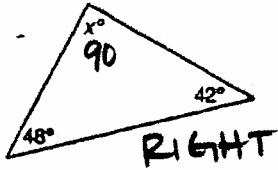
# 10.1A: Solve for missing angles

Student Edition  
Pages 568-572

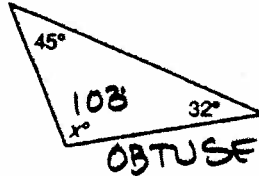
## Triangles

Find the value of  $x$ . Then classify each triangle as acute, right, or obtuse.

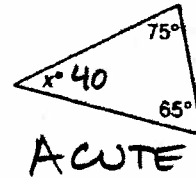
1.



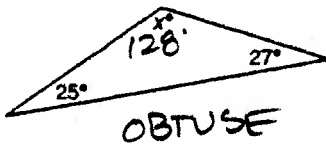
2.



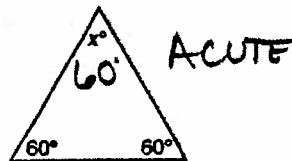
3.



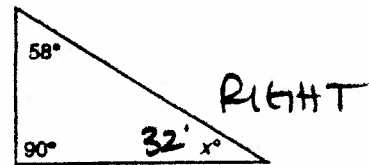
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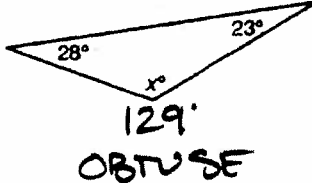
5.



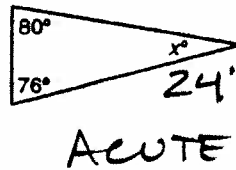
6.



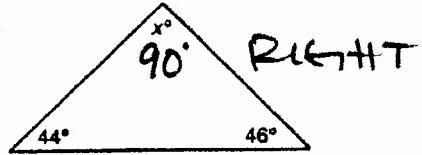
7.



8.



9.



Use the figure at the right to solve each of the following.

10. Find  $m\angle 1$  if  $m\angle 2 = 30^\circ$  and  $m\angle 3 = 55^\circ$ .

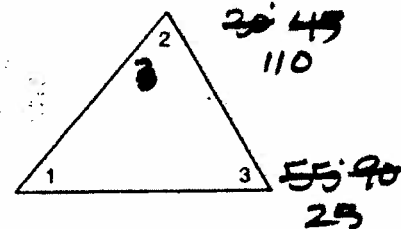
$$m\angle 1 = 95^\circ$$

11. Find  $m\angle 1$  if  $m\angle 2 = 45^\circ$  and  $m\angle 3 = 90^\circ$ .

$$m\angle 1 = 45^\circ$$

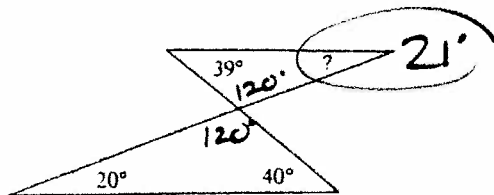
12. Find  $m\angle 1$  if  $m\angle 2 = 110^\circ$  and  $m\angle 3 = 25^\circ$ .

$$m\angle 1 = 45^\circ$$

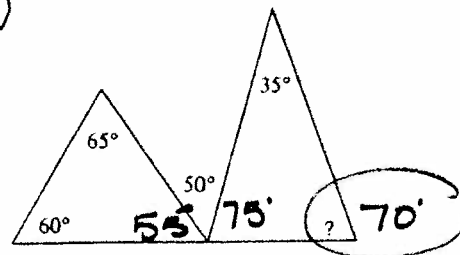


Find the measures of the angles in each triangle.

13)



14)



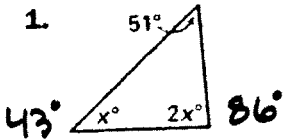
LESSON  
**10.1**

Name \_\_\_\_\_

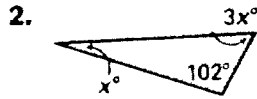
Date \_\_\_\_\_

**Practice B - Angles**  
For use with pages 511-515

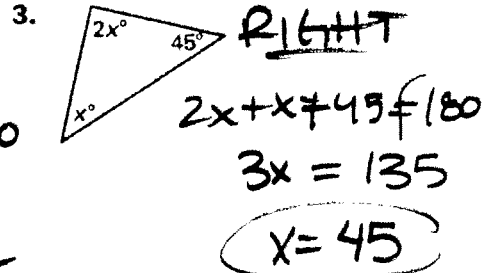
Find the value of  $x$ . Then classify the triangle by its angle measures. - acute, obtuse, or right



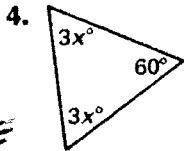
ACUTE  
 $x + 2x + 51 = 180$   
 $3x = 129$   
 $x = 43$



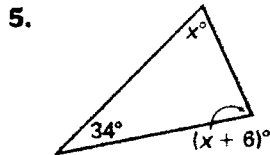
OBTUSE  
 $4x + 102 = 180$   
 $4x = 78$   
 $x = 19\frac{1}{2}$



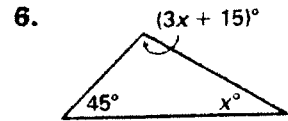
RIGHT  
 $2x + x + 45 = 180$   
 $3x = 135$   
 $x = 45$



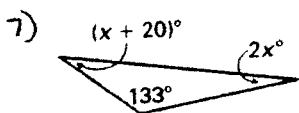
ACUTE  
 $6x + 60 = 180$   
 $6x = 120$   
 $x = 20$



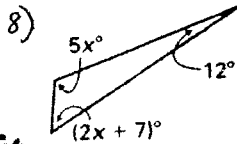
ACUTE  
 $x + x + 6 + 34 = 180$   
 $2x = 140$   
 $x = 70$



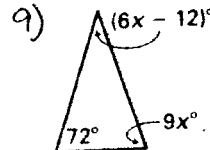
OBTUSE  
 $45 + x + 3x + 15 = 180$   
 $4x = 120$   
 $x = 30$



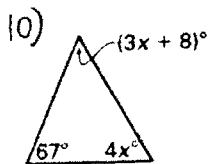
OBTUSE  
 $2x + x + 20 + 133 = 180$   
 $3x = 27$   
 $x = 9$



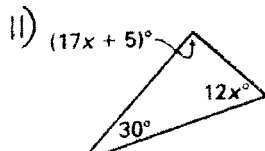
OBTUSE  
 $5x + 2x + 7 + 12 = 180$   
 $7x = 161$   
 $x = 23$



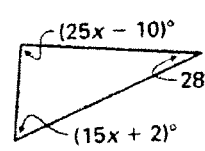
ACUTE  
 $9x + 6x - 12 + 72 = 180$   
 $15x = 120$   
 $x = 8$



ACUTE  
 $67 + 4x + 3x + 8 = 180$   
 $7x = 105$   
 $x = 15$



RIGHT  
 $30 + 12x + 17x + 5 = 180$   
 $35 + 29x = 180$   
 $29x = 145$   
 $x = 5$



RIGHT  
 $28 + 40x - 8 = 180$   
 $40x = 160$   
 $x = 4$

Lesson 10.1

Lesson 10.1

**Practice C - Perimeter**

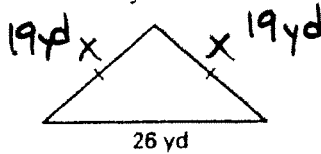
For use with pages 511-515

Find the unknown side lengths of the triangle given the perimeter  $P$ . Then classify the triangle by its side lengths.

1)  $P = 51$  in.

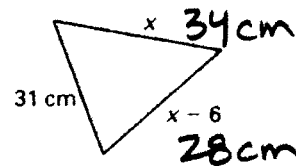


2)  $P = 64$  yd



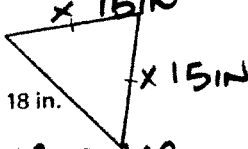
$$\begin{aligned} 2x + 26 &= 64 \\ 2x &= 38 \\ x &= 19 \end{aligned}$$

3)  $P = 93$  cm



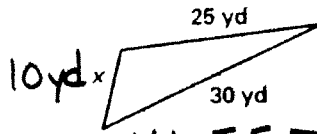
$$\begin{aligned} 31 + 2x - 6 &= 93 \\ 2x &= 68 \\ x &= 34 \end{aligned}$$

4)  $P = 48$  in.



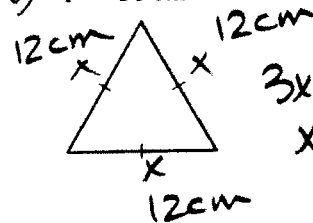
$$\begin{aligned} 2x + 18 &= 48 \\ 2x &= 30 \\ x &= 15 \end{aligned}$$

5)  $P = 65$  yd



$$\begin{aligned} x + 55 &= 65 \\ x &= 10 \end{aligned}$$

6)  $P = 36$  cm

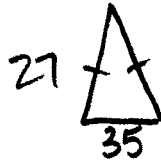


$$\begin{aligned} 3x &= 36 \\ x &= 12 \end{aligned}$$

7) The perimeter of an equilateral triangle is 156 feet. Find the length of each side.

$$\begin{aligned} 3x &= 156 \\ x &= 52 \text{ FEET} \end{aligned}$$

8) The perimeter of an isosceles triangle is 89 centimeters. The length of one side is 35 centimeters. The lengths of the other two sides are equal. Find the lengths of the other two sides.

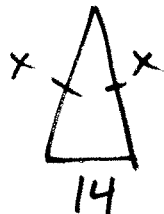


$$\begin{aligned} 2x + 35 &= 89 \\ 2x &= 54 \\ x &= 27 \text{ cm} \end{aligned}$$

9) The perimeter of an equilateral triangle is 45 meters. Find the length of each side.

$$\begin{aligned} 3x &= 45 \\ x &= 15 \text{ m} \end{aligned}$$

10) The perimeter of an isosceles triangle is 34 feet. The length of one side is 14 feet. The lengths of the other two sides are equal. Find the lengths of the other two sides.



$$\begin{aligned} 2x + 14 &= 34 \\ 2x &= 20 \\ x &= 10 \text{ FEET} \end{aligned}$$

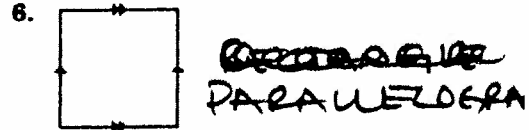
# Practice A

For use with pages 516-520

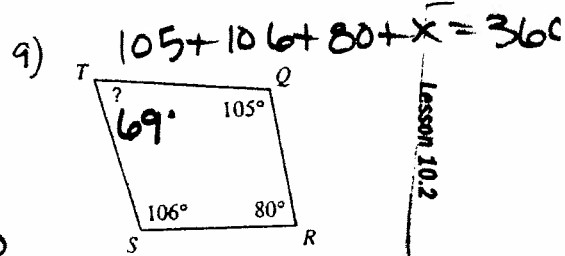
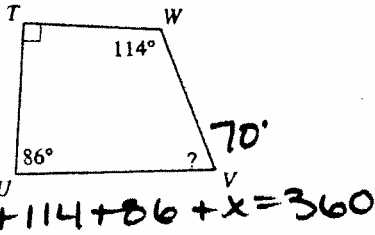
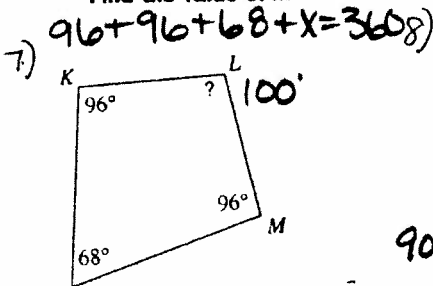
Tell whether the figure is a polygon. If it is a polygon, classify it and tell whether it is convex or concave. If it is not, explain why.



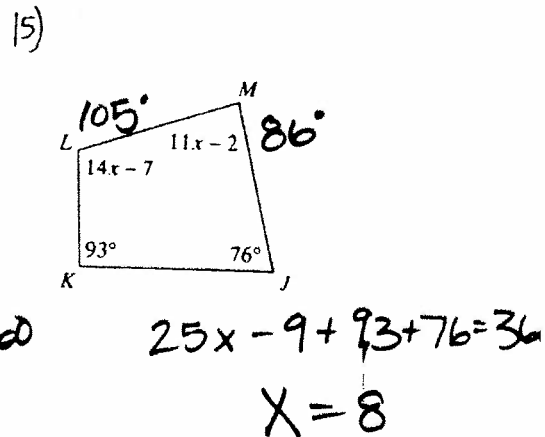
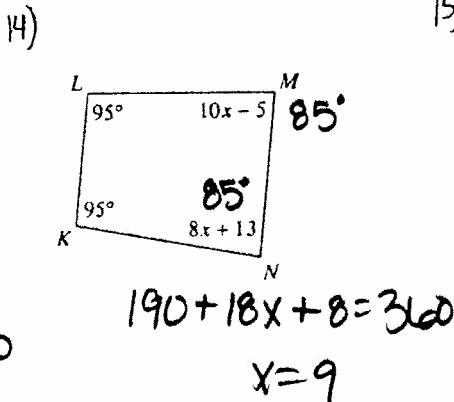
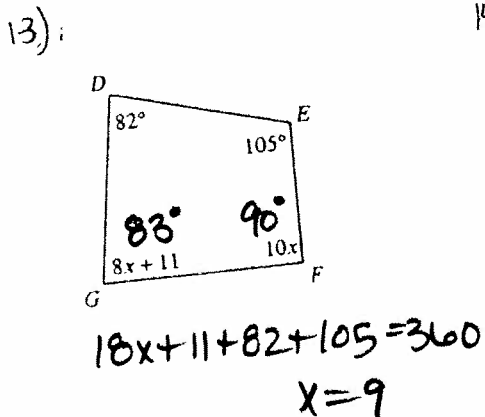
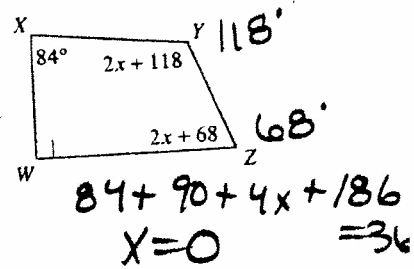
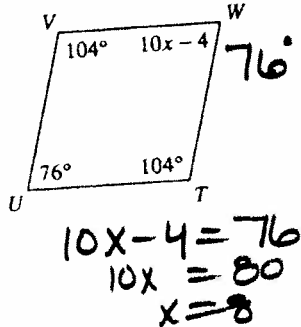
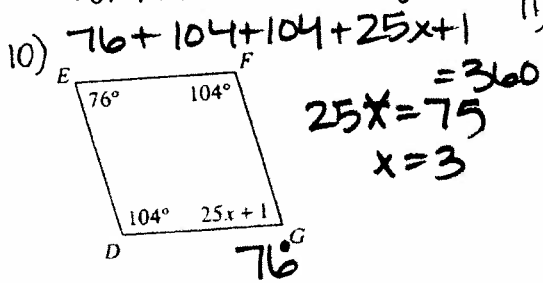
Classify the quadrilateral.



Find the value of  $x$ .

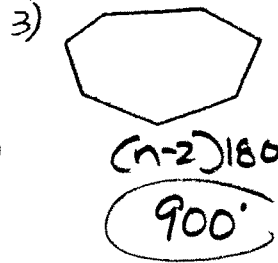
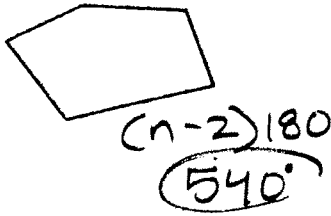
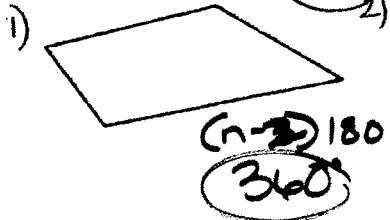


For numbers 10 through 15, solve for  $x$  and find the angle measurements



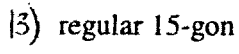
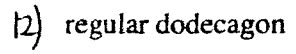
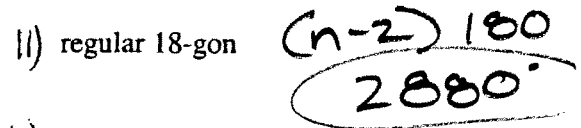
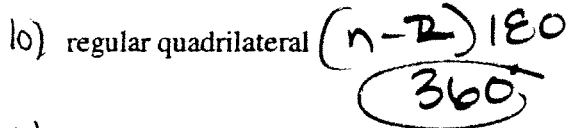
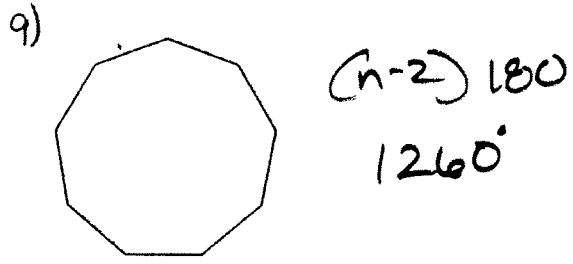
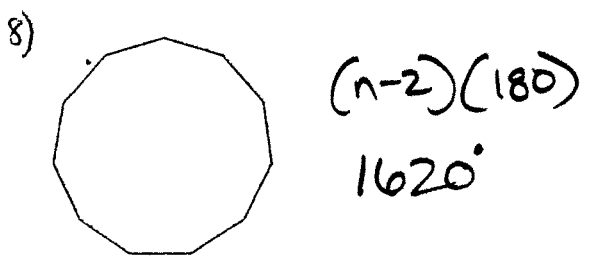
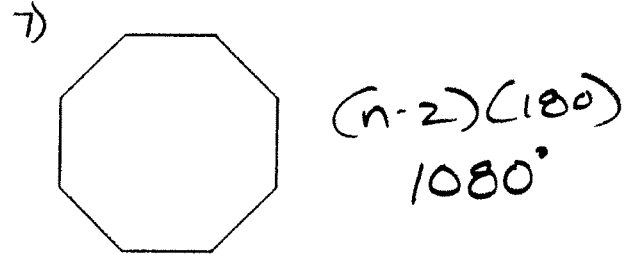
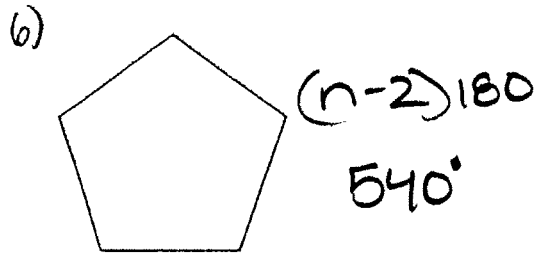
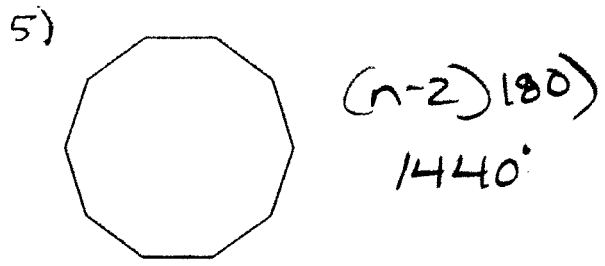
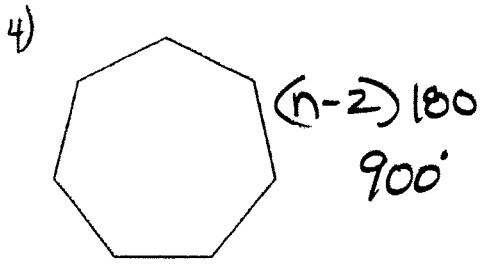
Name: Keu

Find the sum of the measures of the interior angles of the polygon.



10.2B SUM OF INTERIOR ANGLES  
10.2B

Find the interior angle sum for each polygon. Round your answer to the nearest tenth if necessary.



**Critical thinking questions:**

14) What is the exterior angle sum of a 500-gon?

$(n-2)180$   
 SUM OF INTERIOR =  $89,640^\circ$   
 1 INTERIOR =  $179.28$   
 1 EXTERIOR =  $.72 \times 500$   
 SUM =  $360^\circ$

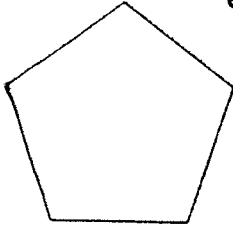
15) Is there a regular polygon with an interior angle sum of  $9000^\circ$ ? If so, what is it?

$9000 = (n-2)180$   
 $50 = n-2$   
 $n = 52$   
YES, 52-GON

**Polygons and Angles**

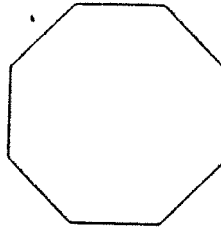
Find the measure of one interior angle in each polygon. Round your answer to the nearest tenth if necessary.

1)



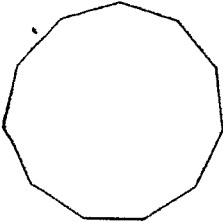
$$\begin{aligned} &(n-2)180 \\ \text{Sum} &= \frac{540}{5} \\ \text{ONE} &= \underline{108^\circ} \end{aligned}$$

2)



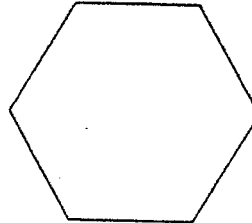
$$\begin{aligned} \text{Sum} &= (n-2)180 \\ &= \frac{1080^\circ}{8} \\ \text{ONE} &= \underline{135^\circ} \end{aligned}$$

3)



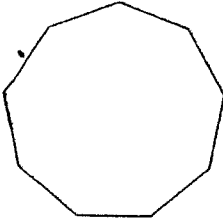
$$\begin{aligned} \text{Sum} &= (n-2)180 \\ &= \frac{1620^\circ}{11} \\ \text{ONE} &= \frac{147.27}{147.3^\circ} \end{aligned}$$

4)



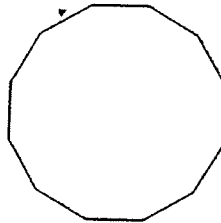
$$\begin{aligned} \text{Sum} &= (n-2)(180) \\ &= \frac{720^\circ}{6} \\ \text{ONE} &= \underline{120^\circ} \end{aligned}$$

5)



$$\begin{aligned} \text{Sum} &= (n-2)180 \\ &= \frac{1260^\circ}{9} \\ \text{ONE} &= \underline{140^\circ} \end{aligned}$$

6)



$$\begin{aligned} \text{Sum} &= (n-2)180 \\ &= \frac{1800^\circ}{12} \\ \text{ONE} &= \underline{150^\circ} \end{aligned}$$

7) regular 24-gon

$$165^\circ \quad (n-2)180 = 3960^\circ / 24$$

8) regular quadrilateral

$$90^\circ$$

9) regular 23-gon

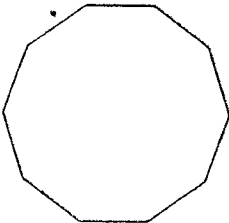
$$164.3^\circ \quad (n-2)180 = 3780^\circ / 23$$

10) regular 16-gon

$$2520^\circ / 16 \quad 157.5^\circ$$

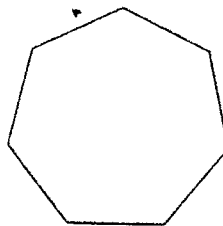
Find the measure of one exterior angle in each polygon. Round your answer to the nearest tenth if necessary.

11)



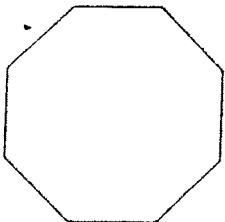
$$\begin{aligned} \text{Sum} &: 1440^\circ \\ \text{ONE} &: 144^\circ \\ \text{EXT} &: 36^\circ \end{aligned}$$

12)



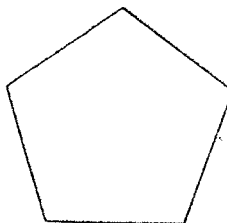
$$\begin{aligned} \text{Sum EXT} &: 360^\circ \\ \text{ONE} &= 51.4^\circ \end{aligned}$$

13)



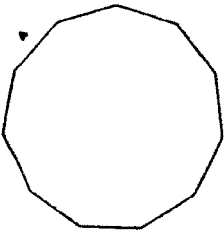
$$\begin{aligned} \text{Sum EXT} &: 360^\circ \\ \text{ONE} &= 45^\circ \end{aligned}$$

14)



$$\begin{aligned} \text{Sum EXT} &: 360^\circ \\ \text{ONE} &: 72^\circ \end{aligned}$$

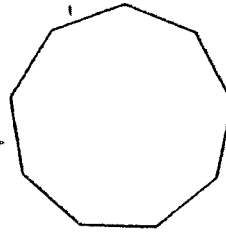
15)



SUM EXT: 360°

ONE: 32.7°

16)



SUM EXT:

360°

ONE: 40°

17) regular 13-gon  $360/13 = 27.7°$

18) regular 16-gon  $360/16 = 22.5°$

19) regular 20-gon  $360/20 = 18°$

20) regular 23-gon  $360/23 = 15.7°$

In Exercises 4-7, match the description with the correct value.

1) Sum of the measures of interior angles of a convex hexagon

2) Measure of an interior angle of a regular 9-gon

3) Measure of exterior angle of a regular pentagon

4) Sum of measures of exterior angles of a 14-gon

— C  
— B  
— D

A. 72°

B. 140°

C. 720°

D. 360°