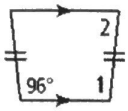
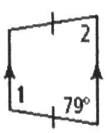
Geometry
Trapezoid and Kite Worksheet

Name: Key Date: _____ Period: ___

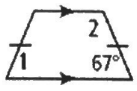
Find the measures of the numbered angles in each isosceles trapezoid.

1. 

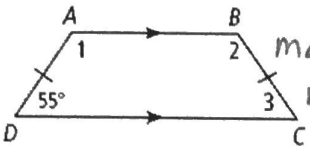
$m\angle 1 = 96°$
$m\angle 2 = 84°$

2. 

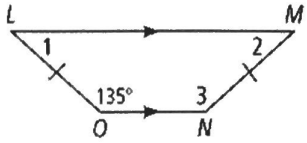
$m\angle 1 = 101°$
$m\angle 2 = 79°$

3. 

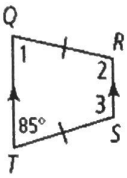
$m\angle 1 = 67°$
$m\angle 2 = 113°$

4. 

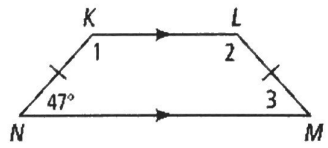
$m\angle 1 = 125°$
$m\angle 2 = 125°$
$m\angle 3 = 55°$

5. 

$m\angle 1 = 45°$
$m\angle 2 = 45°$
$m\angle 3 = 135°$

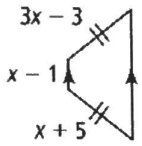
6. 

$m\angle 1 = 85°$
$m\angle 2 = 95°$
$m\angle 3 = 95°$

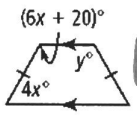
7. 

$m\angle 1 = 133°$
$m\angle 2 = 133°$
$m\angle 3 = 47°$

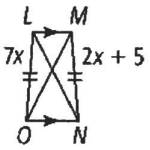
Algebra Find the value(s) of the variable(s) in each isosceles trapezoid.

8. 

$3x - 3 = x + 5$
$+3 \quad +3$
$3x = x + 8$
$-x \quad -x$
$2x = 8$
$x = 4$

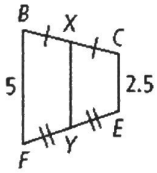
9. 

$6x + 20 + 4x = 180$
$10x + 20 = 180$
$-20 \quad -20$
$10x = 160$
$x = 16$

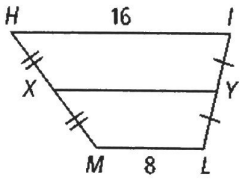
10. 

$7x = 2x + 5$
$-2x \quad -2x$
$5x = 5$
$x = 1$

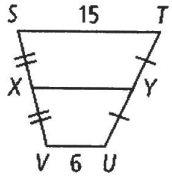
Find *XY* in each trapezoid.

11. 

$\frac{2.5 + 5}{2} = 3.75$

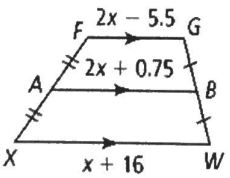
12. 

$\frac{8 + 16}{2} = 12$

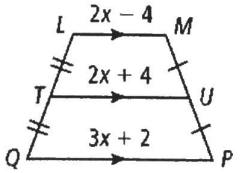
13. 

$\frac{6 + 15}{2} = 10.5$

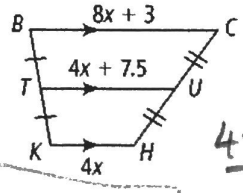
Algebra Find the lengths of the segments with variable expressions.

14. 

$\frac{2x - 5.5 + x + 16}{2} = (2x + .75)2$
$3x + 10.5 = 4x + 1.5$
$x = 9$ | $AB = 18.75$

15. 

$\frac{2x - 4 + 3x + 2}{2} = 2x + 4$
(correct set-up)

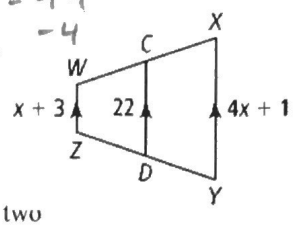
16. 

$\frac{4x + 8x + 3}{2} = 4x + 7.5$
(correct set-up)

$\frac{x+3+4x+1}{2} = (22)2$

$5x+4=44$
$-4 \quad -4$

17. $\overline{CD}$ is the midsegment of trapezoid $WXYZ$.



a. What is the value of x? $x=8$

b. What is XY? 33

c. What is WZ? 11

18. Reasoning The diagonals of a quadrilateral form two acute and two obtuse angles at their intersection. Is this quadrilateral a kite? Explain.

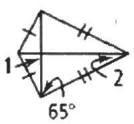
19. Reasoning The diagonals of a quadrilateral form right angles and its side lengths are 4, 4, 6, and 6. Could this quadrilateral be a kite? Explain.

Find the measures of the numbered angles in each kite.

20.

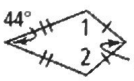
105.5

21.



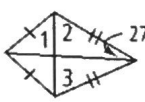
$m\angle 1 = 90°$
$m\angle 2 = 25°$

22.



$m\angle 1 = 118°$
$m\angle 2 = 118°$

23.

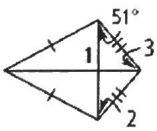


$m\angle 1 = 90$
$m\angle 2 = 63°$
$m\angle 3 = 63°$

24.

$m\angle 1 = 107$
$m\angle 2 = 107$

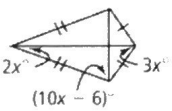
25.



$m\angle 1 = 90°$
$m\angle 3 = 39$
$m\angle 2 = 51°$

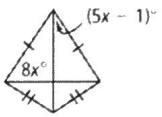
Algebra Find the value(s) of the variable(s) in each kite.

26.



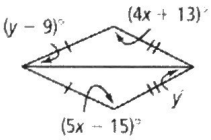
$2x+10x-6+90=180$
$12x+84=180$
$-84 \quad -84$
$12x=96$
$x=8$

27.



$8x+5x-1+90=180$
$13x+89=180$
$-89 \quad 89$
$13x=91$
$x=7$

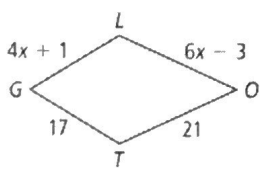
28.



$5x-15=4x+13$
$+15 \quad +15$
$5x=4x+28$
$-4x \quad -4x$
$x=8$

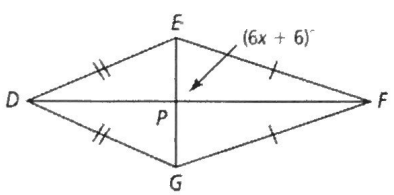
For which value of x is each figure a Kite?

29.



$4x+1=17$
$-1 \quad -1$
$4x=16$
$x=4$

30.



$6x+6=90$
$-6 \quad -6$
$6x=84$
$x=14$