Geometry
Test Review – Quadrilaterals

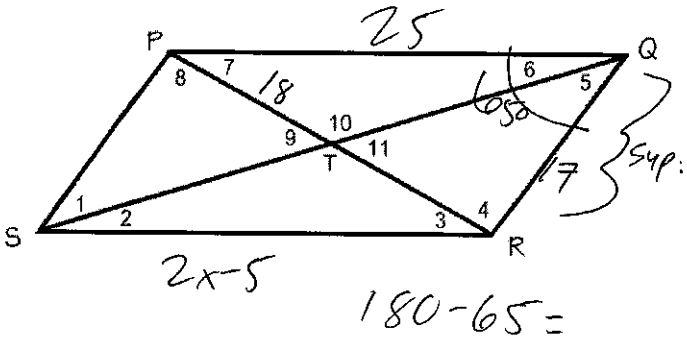
Name: Key
Date: _____

Use parallelogram PQRS to solve the following problems:

1. If m<PQR = 65° then m<QRS= 115°

2. If PQ = 25, QR = 17, and SR = 2x-5, then x= 15
   $2x-5=25$, $+5\ +5$, $\frac{2x}{2}=\frac{30}{2}$

3. If PT = 18, PR = 36

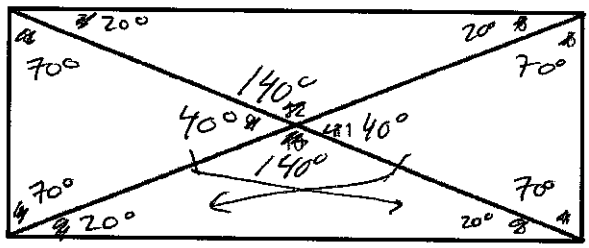


4. Use the rectangle below to answer the following questions:

If m<1 is 70°, find all the other angles.

use ① Base Angle Thm
② each angle totals 90°
③ Δ angles add to 180°

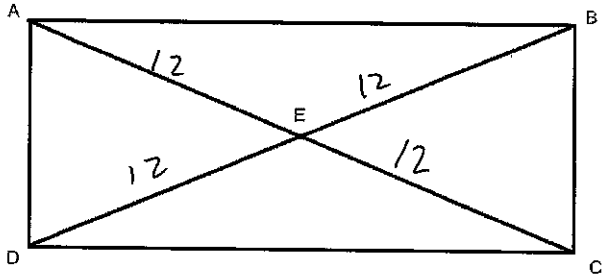
a. m<1 = 70°
b. m<2 = 20°
c. m<3 = 20°
d. m<4 = 70°
e. m<5 = 70°
f. m<6 = 20°
g. m<7 = 20°
h. m<8 = 70°
i. m<9 = 40°
j. m<10 = 140°
k. m<11 = 40°
l. m<12 = 140°



Polygon ABCD is a rectangle.

5. If CE = 12, then BD= 24

6. If AC = 5x-4 and BD = 6x-10, find the length of $\overline{AC}$.
   $\overline{AC}=\overline{BD}$
   $5x-4=6x-10$
   $-5x\ -5x$
   $6=x$
   $5(6)-4=26$

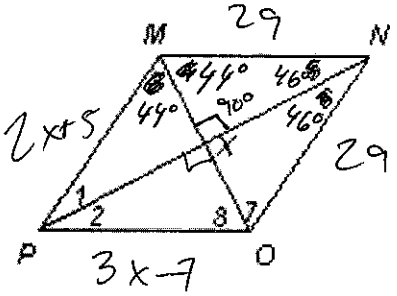


★All side congruent ★Diagonals bisect opp. angles ★consecutive angles are sup.

Polygon PONM is a rhombus.

7. If MP = 2x + 5 and PO = 3x – 7, then MN = 29.

$2x+5=3x-7$ $-2x+7\ \ -2x+7$ $12=x$



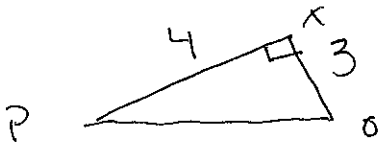
$3(12)-7=29$

8. If m∠PXO = (2x + 6)°, then x = 42.

$2x+6=90$ $-6\ \ -6$ $\frac{2x}{2}=\frac{84}{2}$

9. If m<3 = 44°, then m<6 = 46°.

10. If PX = 4 and XO = 3, then PO = _____.



$3^2+4^2=(\overline{PO})^2$

$9+16=(\overline{PO})^2$

$\sqrt{25}=\sqrt{(\overline{PO})^2}$

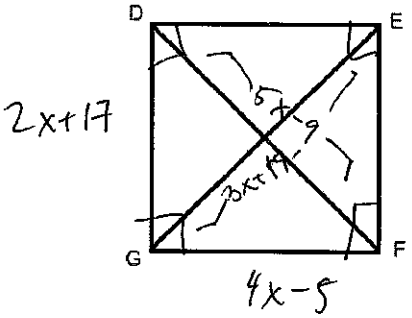
$5=\overline{PO}$

Use square DEFG to answer the following questions:

11. Label all the angles (90° marks)

12. DF = 5x - 9, GE = 3x + 19, x = 14

$5x-9=3x+19$ $-3x+9\ \ -3x+5$ $\frac{2x}{2}=\frac{28}{2}$

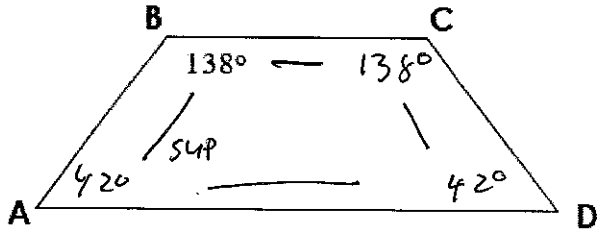


13. If FG = 4x - 5, DG = 2x + 17, then DE= 39

$4x-5=2x+17$ $-2x+5\ \ -2x+5$ $2x=22$ $x=11$

$2(11)+17=39$

Polygon ABCD is an isosceles trapezoid.



14. m<BAD = 42°

15. m<ADC = 42°

16. m<BCD = 138°

17. If diagonal AC is 12x + 3 and diagonal BD is 39 – 6x,

A. find the value for x = 2

B. AC = 27 BD = 27

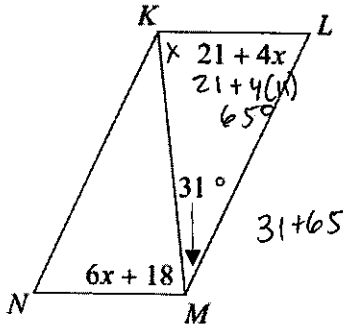
$12x+3=39-6x$ $+6x\ \ -3\ \ +6x$

$\frac{18x}{18}=\frac{36}{18}$

$12(2)+3=27$

Polygons LMNK are parallelograms.

18.



a. x = 11

b. m<L = 65°

c. m<N = 65°

d. m<MKL = 64°

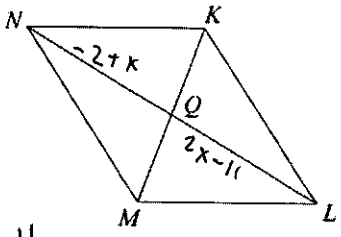
$6x+18+31+21+4x=180$

$10x+70=180$

$-70 \quad -70$

$\frac{10x}{10}=\frac{110}{10}$ $x=11$

19. $LQ = 2x - 11$
$QN = -2 + x$
Find LQ



a. x = 9

b. LQ = 7

c. NL = 14

d. QN = 7

$2x-11=-2+x$

$-2x+2 \quad +2 \quad -2x$

$-9=-x$

$-1 \quad -1$

$9=x$

Polygon WXYZ is a parallelogram. Use the following information to find the missing values.

XY = 3a + 10; WZ = a + 32; WX = 5b; ZY = 3b + 20; XB = 2c + 2; XZ = 6c – 2

20. a = 11

21. XY = 43

22. b = 10

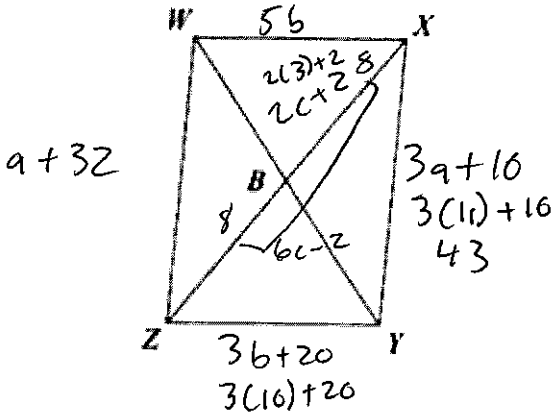
23. ZY = 50

24. c = 3

25. XB = 8

26. BZ = 8

27. XZ = 16



$5b=3b+20$

$-3b \quad -3b$

$\frac{2b}{2}=\frac{20}{2}$

$a+32=3a+10$

$-a \quad -a$

$32=2a+10$

$-10 \quad -10$

$\frac{22}{2}=\frac{2a}{2}$

$11=a$

$2(2c+2)=6c-2$

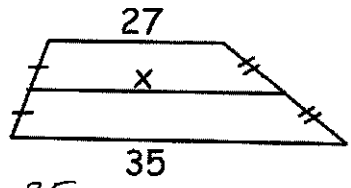
$4c+4=6c-2$

$-4c \quad +2 \quad -4c \quad +2$

$\frac{6}{2}=\frac{2c}{2}$

Use the trapezoids to find the missing values and sides.

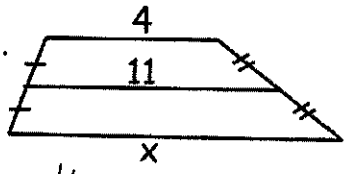
28.



$\frac{27+35}{2} = x$

$31 = x$

29.



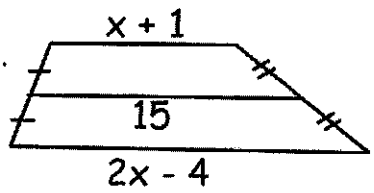
$\frac{4+x}{2} \times \frac{11}{1}$

$4 + x = 22$

$-4 \quad -4$

$x = 18$

30.



$\frac{x+1+2x-4}{2} = 15$

$3x - 3 = 30$

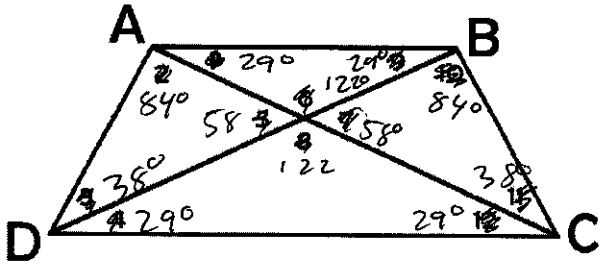
$+3 \quad +3$

$3x = 33$

$x = 11$

31. **Polygon ABCD is an isosceles trapezoid.**
Given: m<DBC = 84° and m<CAB = 29°

a. m<1 = 29°
b. m<2 = 84°
c. m<3 = 38°
d. m<4 = 29°
e. m<5 = 58°
f. m<6 = 122°
g. m<7 = 58°
h. m<8 = 122°
i. m<9 = 29°
j. m<10 = 84°
k. m<DAB = 113°
l. m<ABC = 113°



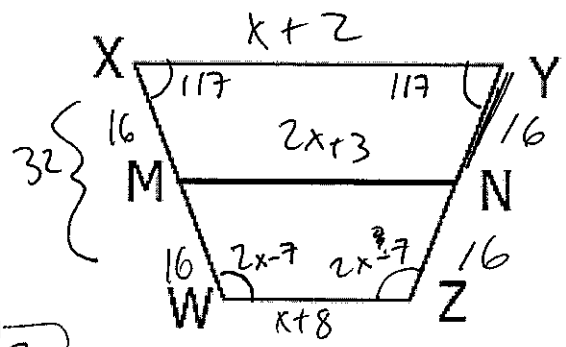
32. **Use isosceles trapezoid WXYZ to answer the following questions.**

MN is midsegment

a. If XW = 32, YN = 16.

b. If m<XWZ = 2x – 7 and m<XYZ = 117, then m<YZW = 63°.

c. If XY = x + 2, WZ = x + 8, MN = 2x + 3, then MN = 2(2)+3=7



$\frac{x+2+x+8}{2} = 2x+3$

$\frac{2x+10}{2} = 2x+3$

$2x+10 = 2(2x+3)$

$2x+10 = 4x+6$

$-2x \quad -2x$

$10 = 2x+6$

$-6 \quad -6$

$\frac{4}{2} = \frac{2x}{2}$

$x = 2$

$117+117+2x-7+2x-7=360$

$4x + 220 = 360$

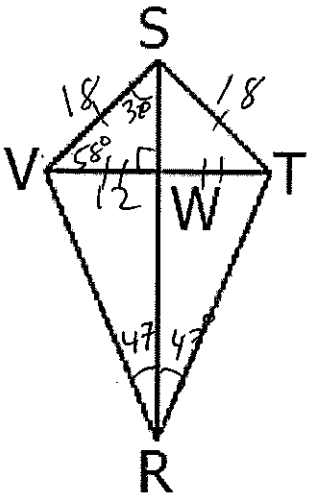
$-220 \quad -220$

$\frac{4x}{4} = \frac{140}{4}$

$x = 35$

$2(35)-7=$

33. **Use Kite STRV to answer the following questions.**



a. If SV = 18, ST = 18.

b. If VW = 12, then VT = 24.

c. If m<VRS = 47 degrees, then m<TRS = 47°.

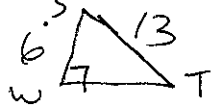
d. If m<VSW = 32 degrees, then m<WVS = 58°.

180 − 32 − 90 = 58°

e. If SV = 2x + 1, ST = 4x – 7, then ST = 9.

$2x+1=4x-7$ $-2x+7 \quad -2x+7$ $\frac{8}{2}=\frac{2x}{2}$ $x=4$ $4(4)-7=9$

f. If ST = 13, SW = 6, then WT = $\sqrt{133}$. (you can round to one decimal place)



$6^2+(\overline{WT})^2=13^2$ $-36 \quad -36$ $(\overline{WT})^2=169-36$ $\sqrt{(\overline{WT})^2}=\sqrt{133}$

g. If m<VRW = 3x + 8, m<TRW = 6x – 28, then m<VRT = 88°.

$3x+8=6x-28$ $-3x+28 \quad -3x+28$ $36=3x$ $x=12$ $3(12)+8=44+44$

h. If m<RWT = 4x – 42, then x = 33.

90°!

$4x-42=90$ $+42 \quad +42$

$\frac{4x}{4}=\frac{132}{4}$