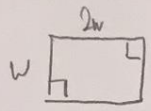
Name KEY Date _____ Period _____ Geometry w/ Trig.

Quadrilaterals Quiz Review
Sections 1.6, 6.1, 6.2, 6.4, 6.5

1. A rectangle's length is twice its width. The perimeter is 180 ft. Find the area.



$2w + 2(2w) = 180$
$2w + 4w = 180$
$6w = 180$
$w = 30$

$A = (30)(60) = 1800$

$l =$ 60 ft
$w =$ 30 ft
$A =$ 1800 ft^2

2. **Multiple Choice**: Vanesa is making a banner for a game. She has 20 square feet of fabric. What shape will use *most* or all of the fabric? SHOW WORK TO ANSWER CORRECTLY.

A. A square with a side length of 4 feet.
$A = (4)^2 = 16\ ft^2$

B. A rectangle with length of 4 feet and a width of 3.5 feet.
$A = 4(3.5) = 14\ ft^2$

C. A circle with radius of about 2.5 feet.
$A = \pi(2.5)^2 \approx 19.63\ ft^2$
★ Largest Area ★

D. A right triangle with legs of about 5 feet each.
$A = \frac{1}{2}(5)(5) = 12.5\ ft^2$

3. What is the measure of an interior angle in a regular hexagon?
Sum of $\angle$s $= (6-2)(180) = 720$ one $\angle = \frac{720}{6} = \boxed{120°}$

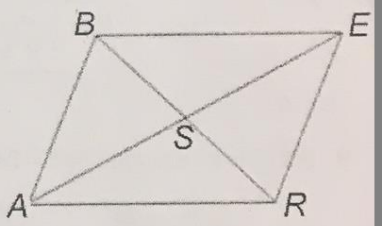
Use the parallelogram *BERA* to the right to fill in the blanks. Complete the reason to support your answer.

a) If $BE = 15$ in., then $AR =$ 15 in.

*Reason: If a quad is parallelogram, then Opposite sides are $\cong$.

b) If $SB = 8$ in., then SR $= 8$ in.

*Reason: If a quad is parallelogram then diagonals bisect each other



c) If $m\angle BAR = 80°$, then $m\angle ABE =$ 100 °.

*Reason: If a quad is parallelogram, then consecutive $\angle$s are supplementary.

d) If $m\angle BER = 70°$, then m∠BAR $= 70°$.

*Reason: If a quad is a ▱, then Opposite $\angle$s are $\cong$.

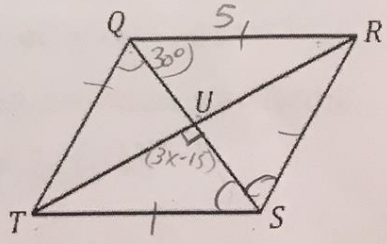
5. *QRST* is a rhombus. $QR = 5$ inches, $m\angle RQS = 30°$, $m\angle TUS = (3x - 15)°$. Find the following measures.

a) $QT =$ 5

b) $m\angle RSQ =$ 30°

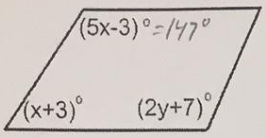
c) $m\angle RTS =$ 60°
$180 - 60 = 120$ $\frac{120}{2} = 60$

d) $x =$ 35
$3x - 15 = 90$
$3x = 105$
$x = 35$



6. Find the variable of each parallelogram below.

a.



$5x - 3 + x + 3 = 180$

$6x = 180$

$x = 30$

$5(30) - 3$

$150 - 3 = 147$

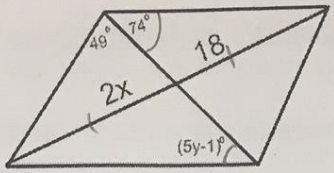
$147 = 2y + 7$

$140 = 2y$

$y = 70$

$x =$ 30, $y =$ 70

b.



$2x = 18$

$x = 9$

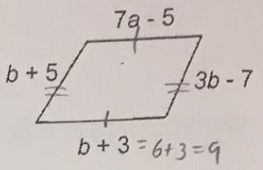
$74 = 5y - 1$

$75 = 5y$

$y = 15$

$x =$ 9, $y =$ 15

c.



$b + 5 = 3b - 7$

$12 = 2b$

$b = 6$

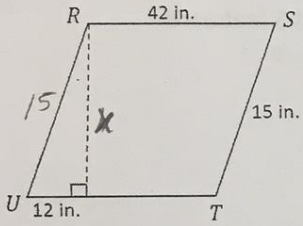
$7a - 5 = 9$

$7a = 14$

$a = 2$

$a =$ 2, $b =$ 6

7. Find the area and perimeter of parallelogram *RSTU*.



$P = 2(42) + 2(15)$

$P = 114$ in

$12^2 + x^2 = 15^2$

$144 + x^2 = 225$

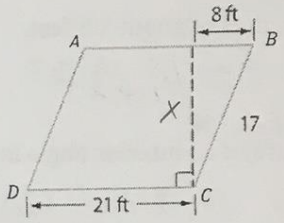
$x^2 = 81$

$x = 9$

$A = \frac{1}{2}(42)(9)$

$A = 189$ in^2

8. Find the area of parallelogram *ABCD*.



$x^2 + 8^2 = 17^2$

$x^2 + 64 = 289$

$x^2 = 225$

$x = 15$

$A = \frac{1}{2}(21)(15)$

$A = 157.5$ ft^2

9. *WXYZ* is a rectangle, $WY = 26$ ft., $RX = (3y + 4)$ ft., and $WZ = 10$ ft. Find the value of y and ZY.

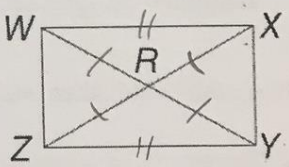
$26 = 2(3y + 4)$

$26 = 6y + 8$

$18 = 6y$

$y = 3$

$ZY = 10$ ft



10. *WXYZ* is a rhombus. Draw a diagram to help find the following.

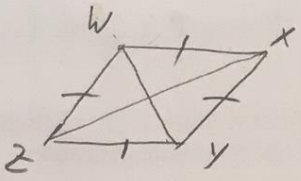
a) If $m\angle X = 24(10 - x)°$ and $m\angle Z = 6(x + 15)°$, find the measure of each angle.

$24(10 - x) = 6(x + 15)$

$240 - 24x = 6x + 90$

$150 = 30x$

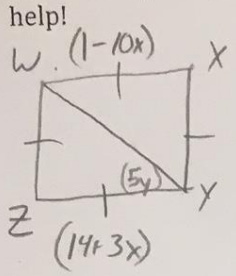
$x = 5$



b) If $WY = 5$ ft. and $ZX = 9$ ft., find the area of the rhombus.

$A = \frac{1}{2}(5)(9) =$ 22.5 ft^2

11. $WXYZ$ is a square. $WX = (1 - 10x)$ in., $YZ = (14 + 3x)$ in., and $m\angle WYZ = (5y)°$. Find WX and y. Draw a diagram to help!



$1 - 10x = 14 + 3x$

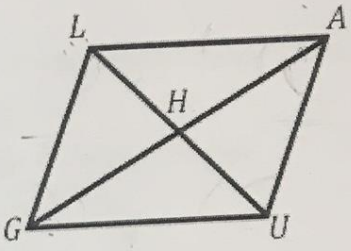
$-13 = 13x$

$\boxed{x = -1}$

$5y = 45$

$\boxed{y = 9}$

12. $LAUG$ is a parallelogram. Identify the most specific type of parallelogram, depending on the extra information given below.



a) $\overline{LH} \cong \overline{HA}$ and $LG \perp LA$ Rectangle

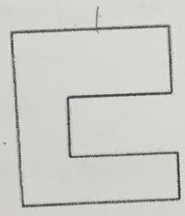
b) $\overline{LA} \cong \overline{AU}$ and $\angle LAH \cong \angle UAH$ Rhombus

c) $\overline{GU} \cong \overline{AU}$ and $\angle LUA \cong \angle HAU$ Square

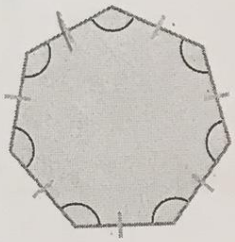
d) $\overline{LG} \cong \overline{AU}$ and $\overline{LH} \cong \overline{GH}$ Rectangle

13. Complete the following about each figure:
1) State the type of polygon based on its number of sides
2) Is the polygon convex or concave?
3) Can the polygon be best described as equilateral, equiangular, irregular or regular?

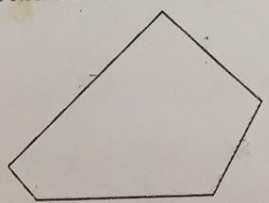
a) 1) Octagon
2) Concave
3) Irregular



b) 1) Heptagon
2) Convex
3) Regular



14. Find the sum of the interior angles of the polygon shown. Then name the polygon by its number of sides.



$n = 5$

Sum of $\angle$s $= (5-2)(180) = \boxed{540°}$

Irregular Pentagon