

Ch 6 Review Sheet

Find the following. Show all work.

1. Sum of the interior angles of a convex decagon?

$$(10-2)180 = 1440$$

3. The measure of an exterior angle of a regular hexagon.

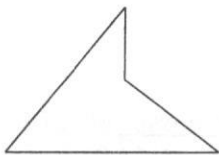
$$\frac{360}{6} = 60^\circ$$

5. The number of sides of a regular polygon if one interior angle measures  $150^\circ$ ? 12

$$\frac{(n-2)180}{n} = 150 \cdot n$$

$$\begin{aligned} 180n - 360 &= 150n \\ -360 &= -30n \\ 12 &= n \end{aligned}$$

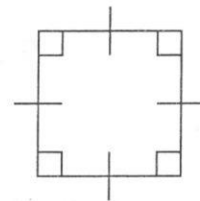
Use the below figurea to answer questions 6-11.



6. Concave or convex? Concave

7. What is the name of the polygon? Quadrilateral

8. Regular or irregular? irregular



Convex

Quadrilateral

regular

Always, Sometimes, Never

9. A rhombus is a rectangle

Sometimes

10. The diagonals of a rectangle are  $\perp$ .

~~Never~~ Sometimes

11. A parallelogram is a trapezoid.

Never

12. A rhombus is a parallelogram.

Always

13. Opposite sides of a kite are congruent.

~~Always~~ Sometimes

14. Base angles of a trapezoid are congruent.

Sometimes

Name \_\_\_\_\_

2. The measure of an interior angle of a regular octagon.

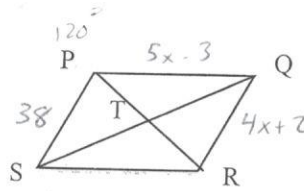
$$\frac{(8-2)180}{8} = 135^\circ$$

4. Name the polygon if the sum of the interior angles is  $1800^\circ$ .

$$\begin{aligned} (n-2)180 &= 1800 \\ 180n - 360 &= 1800 \\ +360 &+360 \\ \hline 180n &= 2160 \end{aligned}$$

$n=12$   
Dodecagon

Given PQRS is a parallelogram.



$$38 = 4x + 2$$

$$36 = 4x$$

$$x = 9$$

$$5(9) - 3 = 42$$

15. If  $PS = 38$ ,  $QR = 4x + 2$  and  $PQ = 5x - 3$ , then what is  $SR$ ? 42
16. If  $m\angle SPQ = 120^\circ$ , then  $m\angle PSR =$   $60^\circ$   $\angle SPQ + \angle PSR = 180$   $\frac{180}{-120}$
17. If  $PT = 6$ , then  $PR =$  12
18. Given  $PQ = 3x + 8$  and  $SR = 5x + 4$ . If the perimeter of the parallelogram is 54 inches, find  $x$  AND find  $PS$ .

$$3x + 8 = 5x + 4$$

$$4 = 2x$$

$$x = 2$$

$$5(2) + 4 = 14$$

$$14 + 14 + x + x = 54$$

$$2x = 26$$

$$x = 13 = PS$$

19. If  $m\angle SPQ = 9x - 16$  and  $m\angle QRS = 4x + 34$ , find  $x$  AND  $m\angle QRS$ .

Opposite angles  $\cong$

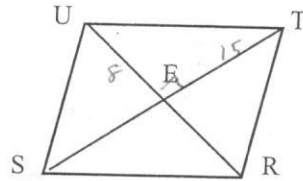
$$9x - 16 = 4x + 34$$

$$5x = 50$$

$$x = 10$$

$$4(10) + 34 = 74^\circ$$

Given TRSU is a rhombus.



20. If  $RS = 4x + 9$ ,  $TR = 6x + 3$ , find  $x$  and the perimeter.
- All sides  $\cong$

$$4x + 9 = 6x + 3$$

$$6 = 2x$$

$$x = 3$$

$$21 \times 4$$

$$84 = \text{perimeter}$$

21. If  $m\angle TEU = 4x + 14$ , find  $x$  and  $m\angle TER$ .

$$4x + 14 = 90$$

$$4x = 76$$

$$x = 19$$

$$90^\circ = \angle TER$$

22. If  $UE = 8$  and  $TE = 15$ , find  $SR$ .

$$8^2 + 15^2 = x^2$$

$$\sqrt{289} = \sqrt{x^2}$$

$$x = 17$$

Given FAST is a rectangle.

23.  $AQ = 4y + 41$ ,  $QT = 9y + 16$ , find  $y$  and  $SF$ .

$$4y + 41 = 9y + 16$$

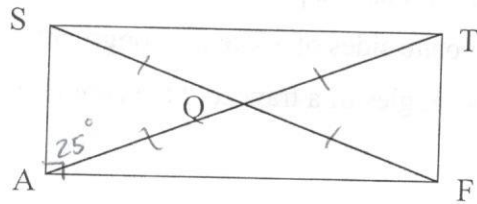
$$25 = 5y$$

$$y = 5$$

$$4(5) + 41 = 61$$

$$\times 2$$

$$122 = SF$$



24. If  $m\angle SAQ = 25^\circ$ , find  $m\angle ASQ$  and  $m\angle FAQ$ .

$$\angle ASQ = 25^\circ$$

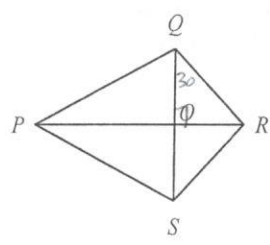
$$90$$

$$-25$$

$$65^\circ = \angle FAQ$$

Given PQRS is a kite.

25. If  $m\angle OQR = 30^\circ$ , then  $m\angle QRO = \underline{60^\circ}$ .



26. If  $m\angle PSR = 108^\circ$ , then  $m\angle PQR = \underline{108^\circ}$ .

27. If  $SO = 14$  and  $QO = \underline{14}$

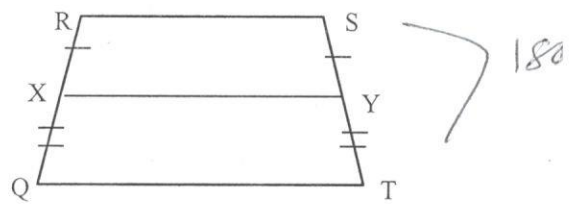
28. The diagonals of a kite are perpendicular.  $\angle QOP = \underline{90^\circ}$ .

Given ISOSCELES Trapezoid QRST

29. If  $m\angle R = 4a + 50$  and  $m\angle S = 30 + 6a$ , find  $a$  and  $m\angle S$ .

$\angle R \cong \angle S$   
 $4a + 50 = 30 + 6a$   
 $20 = 2a$   
 $a = 10$

$30 + 6(10) = \boxed{90 = \angle S}$



30. If  $m\angle Q = 114$ , then  $m\angle R = \underline{66}$

$\frac{180}{-114}$

31. If  $RS = 9x - 5$ ,  $QT = 16x + 3$ , and  $XY = 24$ , find  $x$  and  $QT$ .

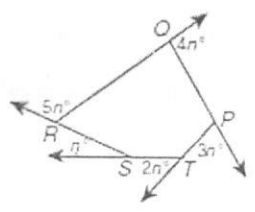
$\frac{9x - 5 + 16x + 3}{2} = 24$

$25x + 2 = 48$

$16(2) + 3 = \boxed{15 = QT}$

$25x = 50$   
 $\boxed{x = 2}$

32. Find the value of  $n$ . 24



exterior  
 $15n = 360$