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Geometry Review Chapter 6

True/False

Indicate whether the statement is always, sometimes or never true.

S 1. A rectangle is a rhombus.

A 2. A square has perpendicular diagonals.

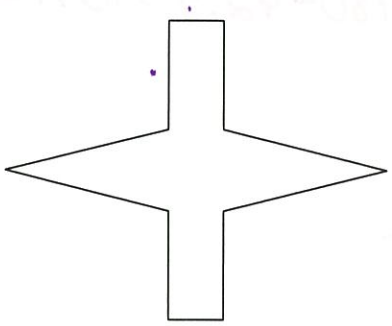
A 3. A rectangle has diagonals that bisect each other.

A 4. A square is a rectangle.

S 5. A rhombus is a square.

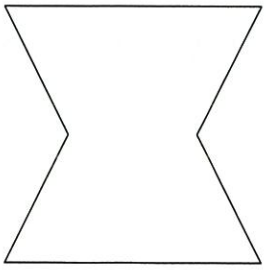
Short Answer

6. Tell whether the figure is a polygon. If it is a polygon, name it by the number of its sides.



yes decagon

7. Tell whether the polygon is regular or irregular. Tell whether it is concave or convex.



irregular
Concave

8. Find the measure of each interior angle of a regular 45-gon.

$\frac{(n-2)180}{n}$ $\frac{(45-2)180}{45} = 172°$

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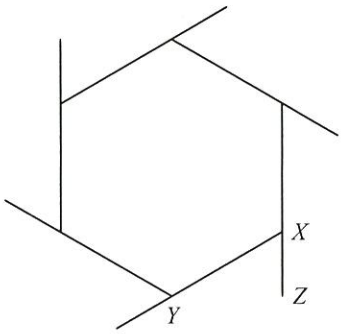
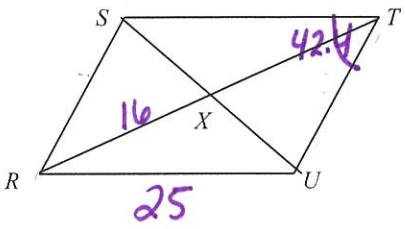
9. The door on a spacecraft is formed with 6 straight panels that overlap to form a regular hexagon. What is the measure of $\angle YXZ$?



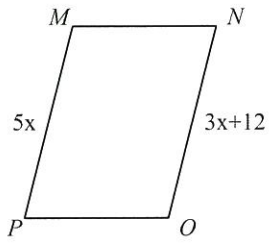
$\frac{360}{n} = \frac{360}{6} = 60°$

10. The diagram shows the parallelogram-shaped component that attaches a car's rearview mirror to the car. In parallelogram $RSTU$, $UR = 25$, $RX = 16$, and $m\angle STU = 42.4°$. Find ST, XT, and $m\angle RST$.



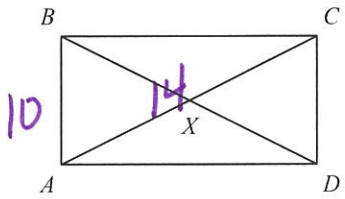
$ST = 25$
$XT = 16$
$\angle RST = 180 - 42.4 = 137.6°$

11. $MNOP$ is a parallelogram. Find MP.



$5x = 3x + 12$
$2x = 12$
$x = 6$
$MP = 5(6) = 30$

12. An artist designs a rectangular quilt piece with different types of ribbon that go from the corner to the center of the quilt. The dimensions of the rectangle are $AB = 10$ inches and $AC = 14$ inches. Find BX.



$BX = 7$

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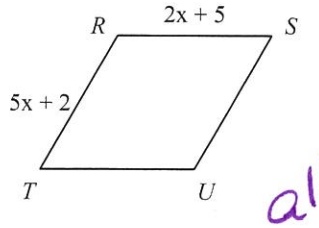
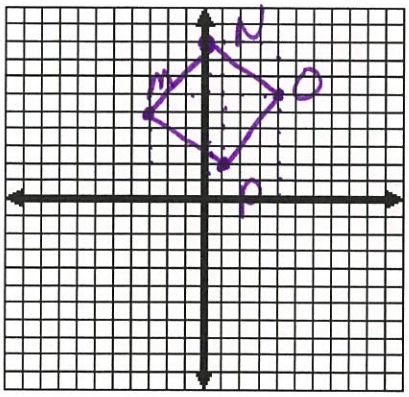
13. *TRSU* is a rhombus. Find *SU*.



$5x+2=2x+5$
$3x=3$
all sides: $x=1$
$\rightarrow SU = 2(1)+5 = 7$

14. Which of the following is the best name for figure *MNOP* with vertices $M(-3,5)$, $N(0,9)$, $O(4,6)$, and $P(1,2)$; parallelogram, rectangle, rhombus, or square?

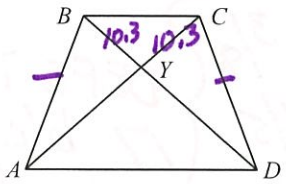


Slopes:
NO = -3/4
OP = 4/3
PM = -3/4
MN = 4/3
} Rect. b/c cons. side have neg rec. slopes ∴ ⊥

NP = -7/1
MO = 1/7
} Rhomb. b/c diag. have neg rec. slopes. ∴ ⊥

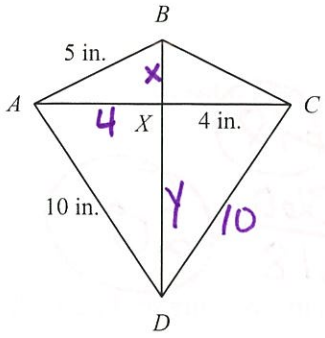
Square b/c it's both Rect + Rho

15. Given isosceles trapezoid *ABCD* with $\overline{AB} \cong \overline{CD}$, $BY = 10.3$, and $AC = 17.2$. Find *YD*.



$17.2 - 10.3 = 6.9$

16. A pillow is the shape of a kite. Heath wants to create a design connecting opposite corners from point *B* to point *D*, and from point *A* to point *C*. Find the amount of cording needing. One package of cording contains 5 inches of cord. How many packages does Heath need?



$x^2+4^2=5^2$
$x^2+16=25$
$x^2=9$
$x=3$

$y^2+4^2=10^2$
$y^2+16=100$
$y^2=84$
$y=2\sqrt{21}$

$4+4+3+2\sqrt{21} = 20.17$ in.
4 packages would be 20 in
so you need 5 packag

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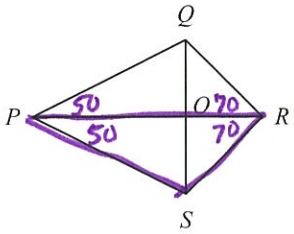
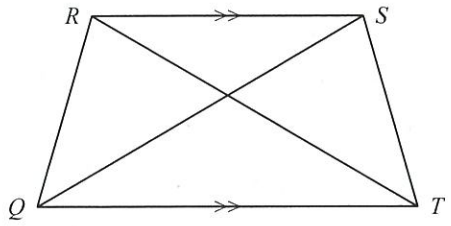
17. In kite $PQRS$, $m\angle QPO = 50°$ and $m\angle QRO = 70°$. Find $m\angle PSR$.



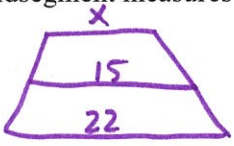
180
−120
60°

18. $QS = 3x + 4$ and $RT = 8x - 10$. Find the value of x so that $QRST$ is isosceles.



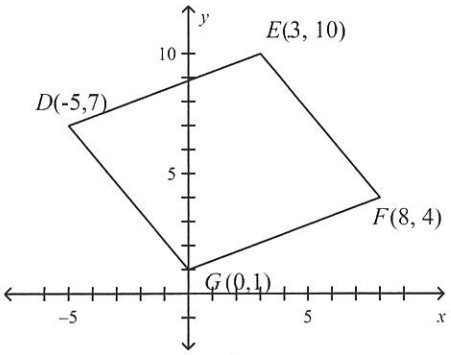
$3x+4 = 8x-10$
$14 = 5x$
$x = 2.8$

19. A trapezoid midsegment measures 15. One of the bases measures 22. What is the measure of the other base?



$2(15) = x+22$
$30 = x+22$
$8 = x$

20. Show that quadrilateral $DEFG$ is a parallelogram.



Slope DE = 3/8
EF = −4/5
GF = 3/8
DG = −4/5

DEFG is a ▱ b/c opp sides have same slopes ∴ they are ∥

21. Each interior angle of a regular polygon measures 162. How many sides does it have?

Interior = 162 → exterior = 180 − 162 = 18

$\frac{360}{18} = 20$

22. The sum of the measures of seven angles of an octagon is 970°. What is the measure of the eighth angle?

$(n-2)180 = (8-2)180 = 1080$
$-\ 970$
110

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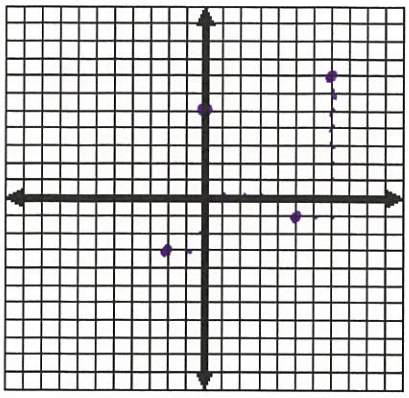
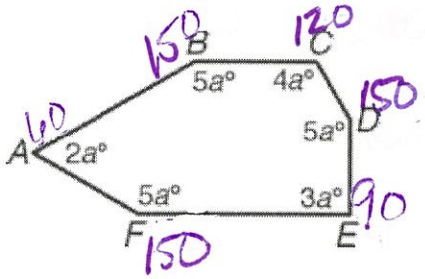
23. Three vertices of parallelogram $WXYZ$ are $X(-2,-3)$, $Y(0, 5)$, and $Z(7, 7)$. Find the coordinates of vertex W.



(5, -1)

24. Find the measure of each interior angle of hexagon ABCDEF.

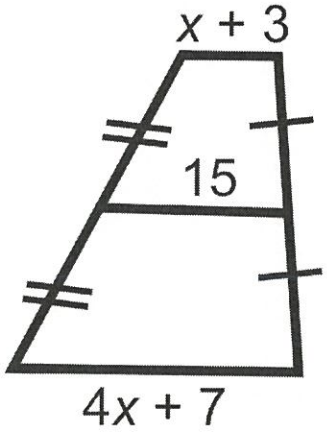


$(6-2)180 = 720$

$24a = 720$

$a = 30$

25. Find the value of x.



$2(15) = x+3+4x+7$

$30 = 5x+10$

$20 = 5x$

$x = 4$