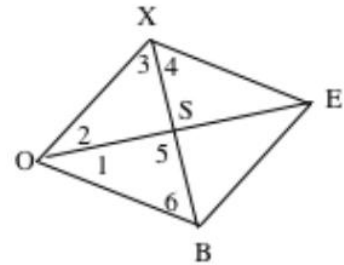


Decide if the following statements are true or false. If the statement is false, cross out a word and change it to make it a true statement.

1. The diagonals of a rhombus bisect each other.
2. The diagonals of a parallelogram are congruent.
3. A rhombus is a square.
4. A square is a rectangle.
5. The consecutive angles of a rectangle are congruent.
6. The consecutive angles of a rhombus are congruent.
7. Adjacent sides of a rectangle are congruent.
8. The diagonals of a rectangle are perpendicular.
9. The diagonals of a rectangle bisect opposite angles.
10. A rectangle is equilateral.
11. **BOXE** is a rhombus. If $SB = 4$ in. and $ES = 6$ in. find the perimeter of **BOXE** in simplest radical form.



12. Using the same figure above, if $m\angle 1 = 25^\circ$, find the measures of:
a) $\angle 2$ _____ b) $\angle 3$ _____ c) $\angle 4$ _____ d) $\angle 5$ _____

13. Using the same figure above, if $m\angle 1 = 3x + 1^\circ$ and $m\angle 3 = 7x - 11^\circ$ find the value of x .

14. Draw rectangle **QRST** with diagonals intersecting at Point P.

If $m\angle PTS = 34^\circ$ and $QS = 10$, find the following measures to the nearest tenth:

- a) $m\angle SRT =$ _____ b) $QP =$ _____ c) $QR =$ _____ d) $m\angle QPR =$ _____ e) $RP =$ _____ f) $RS =$ _____

15. Draw square **BENT** with diagonals intersecting at point L.

If $BE=y^2-36$, $EN = -9y$ and $m\angle BNT = (x^2+4x)^\circ$, find x, y and ET .

16. Draw parallelogram **ABCD** with the diagonals intersecting at point E. $AB=4x+y$, $AD=2x+y$, $m\angle BAD=(3y^2+41)^\circ$, $BC=6$ and $DC=8$. Is **ABCD** a rectangle? Why or why not?

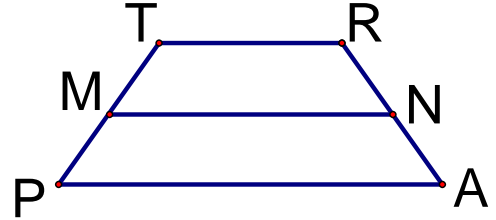
17. Draw rhombus **ABCD** with the diagonals intersecting at point E. If $\angle BAC = 53^\circ$ and $DE=8$ find the following:

a) $m\angle DAC$ _____ b) $m\angle ADC$ _____ c) $m\angle AED$ _____ d) DB _____ e) AC _____ f) AE _____

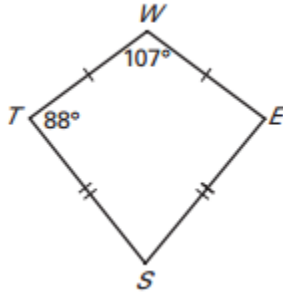
18. **WXYZ** is a trapezoid with bases WZ and XY and midsegment MN . If $MN = 10x+3$, $WZ = 11$, and $XY = 8x+19$, find the length of the midsegment.

19. In trapezoid $FGHI$, $\overline{FG} \parallel \overline{IH}$, J is the midpoint of \overline{FI} and K is the midpoint of \overline{GH} . If $JK = 7$, $FG = x^2 + 2$, and $IH = x^2 + 2x - 12$, find the value(s) of x .

20. Isosceles Trapezoid TRAP has legs of length 10 and midsegment \overline{MN} . $TR = 12$ and the perimeter of TRNM is 37. Please find the perimeter of NAPM.

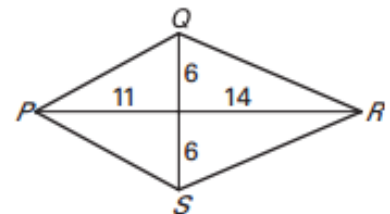


21. **WEST** is a kite. Find the missing angle measures.



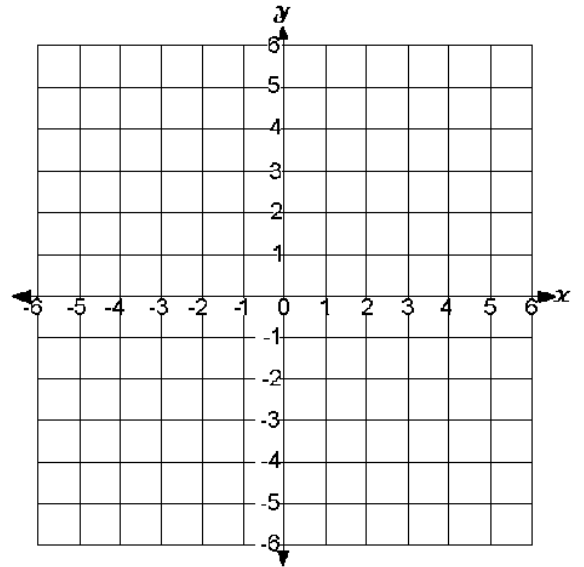
22. The longer diagonal of a rhombus measures 42 cm. One side of the rhombus measures 29 cm. Find the length of the shorter diagonal.

23. Find the side lengths of the kite below. Please leave in simplest radical form.



24. Graph the following points. Give the most specific name for the quadrilateral. Include complete explanation including work. Find BD and AC . What additional information do these lengths provide about the quadrilateral?

$A(-1,5)$, $B(2,5)$, $C(6, 1)$ and $D(-3, 1)$



Answer Key:

Note: Any of the 'false' ones could have multiple answers. If you're not sure if your version is correct, please ask.

- 1) True
- 2) False. The diagonals of a rectangle (or square) are congruent.
- 3) False. A rhombus is a parallelogram.
- 4) True
- 5) True
- 6) False. The consecutive angles of a rhombus are supplementary.
- 7) False. Adjacent sides of a rhombus (or square) are congruent.
- 8) False. The diagonals of a rectangle are congruent.
- 9) False. The diagonals of a rhombus (or square) bisect opposite angles.
- 10) False. A rectangle is equiangular.
- 11) $P = 8\sqrt{13}$ inches
- 12) a) 25° b) 65° c) 65° d) 90°
- 13) $x = 10$
- 14) a) 56° b) 5 c) 8.3 d) 112° e) 5 f) 5.6
- 15) $x = 5$ or $x = -9$. $y = -12$, ET = $108\sqrt{2}$
- 16) $x = 1$, $y = 4$, $m\angle BAD = 89^\circ$ therefore ABCD is not a rectangle.
- 17) a) 53° b) 74° c) 90° d) 16 e) 12.06 f) 6.03
- 18) $x = 2$ and $MN = 23$
- 19) $x = 3$
- 20) $P = 43$ units
- 21) $m\angle E = 88^\circ$, $m\angle S = 77^\circ$
- 22) 40 cm
- 23) $PQ = PS = \sqrt{157}$. $QR = RS = 2\sqrt{58}$
- 24) ABCD is a trapezoid because $\overline{AB} \parallel \overline{DC}$ since they have the same slope ($m=0$). $BD = \sqrt{41}$ while $AC = \sqrt{65}$. Since diagonals \overline{BD} and \overline{AC} are not congruent, this trapezoid is not isosceles.