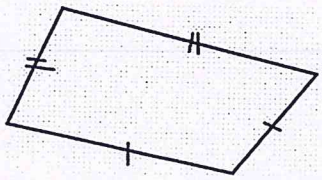
Bellwork Geo Tuesday, February 4, 2020

Determine the most precise name for each figure: Quadrilateral, Parallelogram, Rhombus, Rectangle, Square, Trapezoid, Isosceles Trapezoid, Kite

1.



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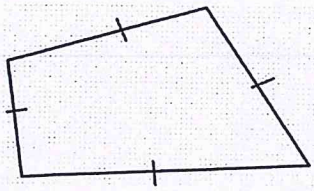

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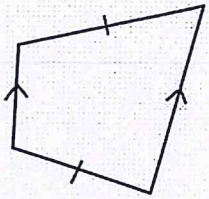

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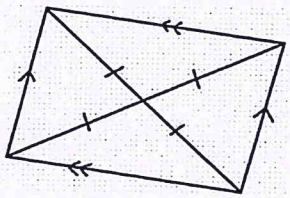

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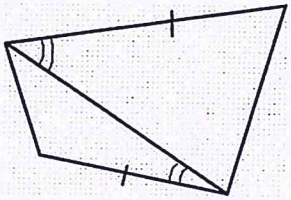
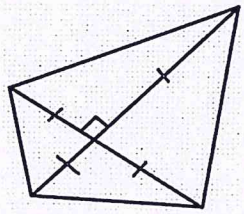


6.



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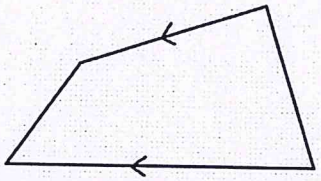

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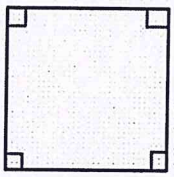


For 9 and 10, use coordinate geometry to determine if each figure is a Parallelogram, Rhombus, Rectangle, Square or just Quadrilateral.

9. Quad ABCD:

$A(3,-5)$ $B(5,-11)$ $C(11,-9)$ $D(9,-3)$

10. Quad EFGH:

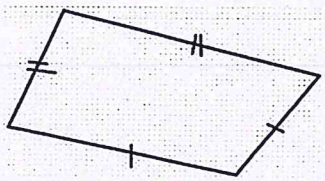
$E(4,6)$ $F(16,5)$ $G(8,-4)$ $H(-4,-3)$

11. The perimeter of a Rhombus is 100 in. If one of the diagonals is 48 in long find the length of the other diagonal.

Bellwork Geo Tuesday, February 4, 2020 ANSWERS

Determine the most precise name for each figure: Quadrilateral, Parallelogram, Rhombus, Rectangle, Square, Trapezoid, Isosceles Trapezoid, Kite

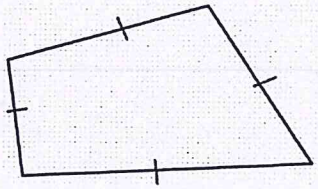
1.



KITE

2 pair adjacent sides $\cong$ & no opp sides $\cong$

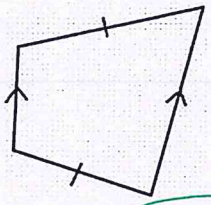
2.



Rhombus

4 $\cong$ sides

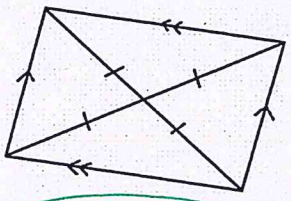
3.



Isosceles TRAPEZOID

1 pair $\parallel$ sides, non-$\parallel$ sides $\cong$

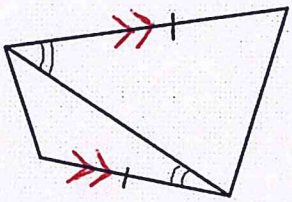
4.



Rectangle

$\parallel$-gram (opp sides $\parallel$) w/ $\cong$ diagonals

5.

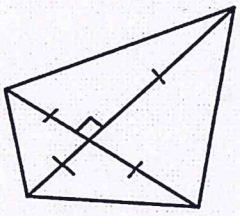


alt-int $\angle$s $\cong$

$\parallel$-gram

one pair of opp sides $\parallel$ and $\cong$

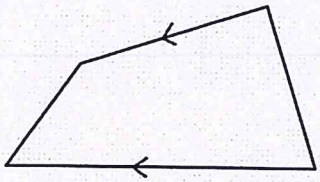
6.



Square

Diagonals $\perp$ & $\cong$

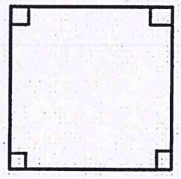
7.



Trapezoid

exactly one pair sides $\parallel$

8.



Rectangle

4 RT $\angle$s

For 9 and 10, use coordinate geometry to determine if each figure is a Parallelogram, Rhombus, Rectangle, Square or just Quadrilateral.

9. Quad ABCD:

$A(3,-5)$ $B(5,-11)$ $C(11,-9)$ $D(9,-3)$

mdpt diagonals

$AC: \left(\frac{3+11}{2}, \frac{-5+-9}{2}\right) = (7,-7)$

$BD: \left(\frac{5+9}{2}, \frac{-11+-3}{2}\right) = (7,-7)$

ABCD is a ll-gram b/c diagonals bisect each other (same mdpt)

Slope of diagonals

$AC: m = \frac{-5--9}{3-11} = \frac{4}{-8} = -\frac{1}{2}$

$BD: m = \frac{-3--11}{9-5} = \frac{8}{4} = 2$

ABCD is a Rhombus b/c diagonals $\perp$ (opp recip. slopes)

Length of diagonals

$AC = \sqrt{(11-3)^2+(-9--5)^2} = \sqrt{80}$

$BD = \sqrt{(9-5)^2+(-3--11)^2} = \sqrt{80}$

ABCD is a Rectangle b/c diag $\cong$

ABCD is a Square - its a ll-gram, Rhombus, & Rectangle

10. Quad EFGH:

$E(4,6)$ $F(16,5)$ $G(8,-4)$ $H(-4,-3)$

mdpt of diagonals

$EG: \left(\frac{4+8}{2}, \frac{6+-4}{2}\right) = (6,1)$

$FH: \left(\frac{16+-4}{2}, \frac{5+-3}{2}\right) = (6,1)$

EFGH is a ll-gram b/c diagonals bisect each other (same mdpt)

Slope of diagonals

$EG: m = \frac{6--4}{4-8} = \frac{10}{-4} = -5/2$

$FH: m = \frac{5--3}{16--4} = \frac{8}{20} = \frac{2}{5}$

EFGH is a Rhombus b/c diagonals are $\perp$ (opp. recip. slopes)

Length of diagonals:

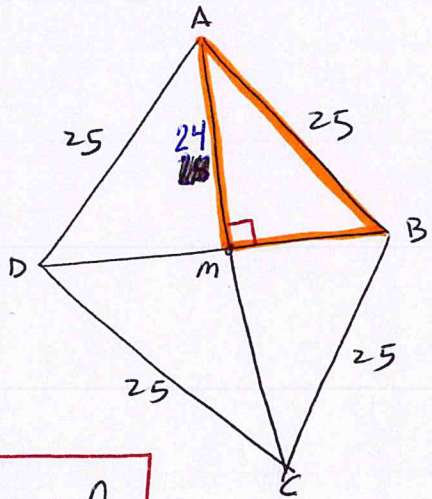
$EG = \sqrt{(8-4)^2+(-4-6)^2} = \sqrt{116}$

$FH = \sqrt{(16--4)^2+(5--3)^2} = \sqrt{464}$

EFGH is NOT a rectangle b/c diagonals are NOT $\cong$

EFGH is a Rhombus b/c it's a ll-gram w/ $\perp$ diagonals

11. The perimeter of a Rhombus is 100 in. If one of the diagonals is 48 in long find the length of the other diagonal.

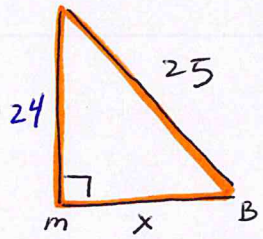


perimeter = 100 in

each side $= \frac{100\text{ in}}{4} = 25\text{ in}$

if AC = 48 then AM = 24 b/c diagonals bisect each other

diagonals are $\perp$



$25^2 = 24^2 + x^2$

$625 = 576 + x^2$

$49 = x^2$

$x = 7$

mB = 7 therefore DB = 2(7)

DB = 14

other diagonal = 14