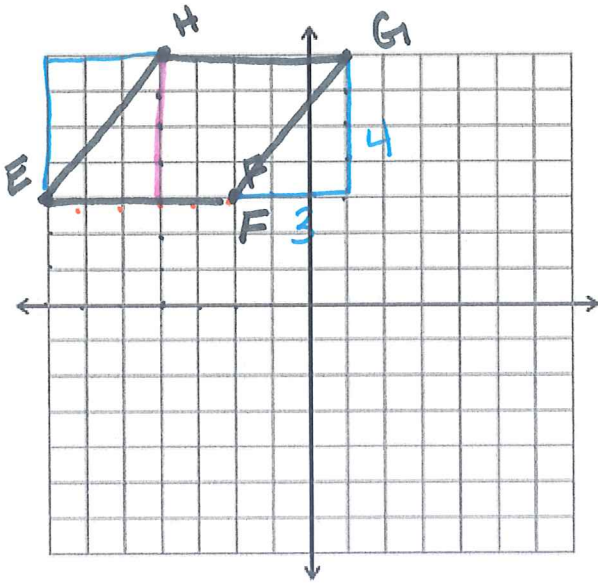


COORDINATE GEOMETRY DAY 1 HW

Determine whether the figure is a parallelogram, rectangle, rhombus, square or just a general quadrilateral. Explain your reasoning. (Classify all that apply)

1. $E(-7, 3), F(-2, 3), G(1, 7), H(-4, 7)$



<p>Slopes:</p> <p>Slope $HG = 0$ $HG \parallel EF$</p> <p>Slope $EF = 0$ $> \parallel$</p> <p>Slope $FG = \frac{4}{3}$</p> <p>Slope $EH = \frac{4}{3}$ $FG \parallel EH$</p> <p style="text-align: center; color: blue;">No Y slopes</p>	<p>Distances:</p> <p>$EF = 5$ $HG = 5$</p> <p>$EH^2 = 4^2 + 3^2$</p> <p>$EH = 5$</p> <p>$FG^2 = 3^2 + 4^2$</p> <p>$FG = 5$</p> <p>$4 \cong \text{sides}$</p>
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Conclusion:
 EFGH has opposite sides \parallel and $4 \cong$ sides classifying it as a Rhombus and parallelogram by def.

Perimeter:

add up all of the sides!

$5 + 5 + 5 + 5 = P$

$P = 20 \text{ units}$

Area:

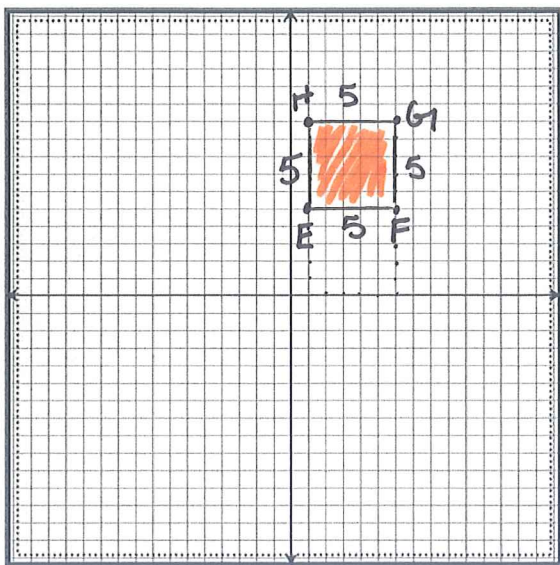
$A = B \cdot h$

$A = 5 \cdot 4$

$A = 5 \cdot 4$

$A = 20 \text{ units}^2$

2. $E(1, 5), F(6, 5), G(6, 10), H(1, 10)$



Slopes:

$$\text{Slope } EF = 0$$

$$\text{Slope } HG = 0$$

$$\boxed{EF \parallel HG}$$

$$\text{Slope } HE = \text{undef.}$$

$$\text{Slope } GF = \text{undef.}$$

$$\boxed{HE \parallel GF}$$

and consecutive
sides are \perp \therefore

Distances:

$$HG = 5$$

$$HE = 5$$

$$EF = 5$$

$$GF = 5$$

all sides are
 \cong

Conclusion:

opposite sides are \parallel ,
consecutive sides are \perp
and all sides are \cong
 \therefore EFGH is a square,
rectangle, rhombus and
parallelogram.

Perimeter:

$$P = 5 + 5 + 5 + 5$$

$$\boxed{P = 20 \text{ units}}$$

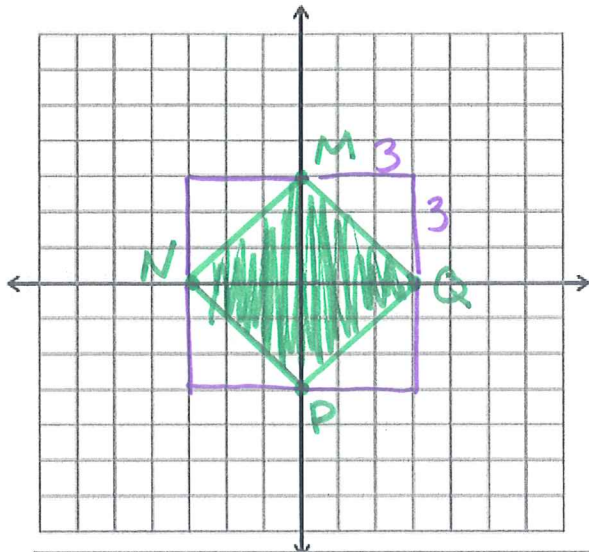
Area:

$$A = l \cdot w$$

$$A = 5 \cdot 5$$

$$\boxed{A = 25 \text{ units}^2}$$

3. $M(0, 3), N(-3, 0), P(0, -3), O(3, 0)$



Conclusion:

op. sides \parallel , 4 Right \angle s
and 4 \cong sides \therefore
 $MNPQ$ is a square,
rectangle rhombus
and parallelogram

Slopes:

$$\text{Slope } MQ = -\frac{3}{3} = -1$$

$$\text{Slope } NP = -\frac{3}{3} = -1$$

$$\boxed{MQ \parallel NP} \quad \perp$$

$$\text{Slope } PQ = \frac{3}{3} = 1$$

$$\text{Slope } NM = \frac{3}{3} = 1$$

$$\boxed{PQ \parallel MN}$$

consecutive
sides are \perp
so 4 Right \angle 's

Distances:

$$3^2 + 3^2 = MQ^2$$

$$\sqrt{18} = MQ$$

$$\boxed{3\sqrt{2} = MQ}$$

$$3^2 + 3^2 = QP^2$$

$$\boxed{3\sqrt{2} = QP}$$

$$3^2 + 3^2 = NP^2$$

$$\boxed{3\sqrt{2} = NP}$$

$$3^2 + 3^2 = NM^2$$

$$\boxed{3\sqrt{2} = NM}$$

4 \cong sides

$$3\sqrt{2} \approx 4.2$$

Perimeter:

$$4 \times 3\sqrt{2} = \boxed{12\sqrt{2} = P}$$

OR

$$4 \times 4.2$$

$$P \approx 16.8 \text{ units}$$

Area:

$$A = l \cdot w \quad (\text{square})$$

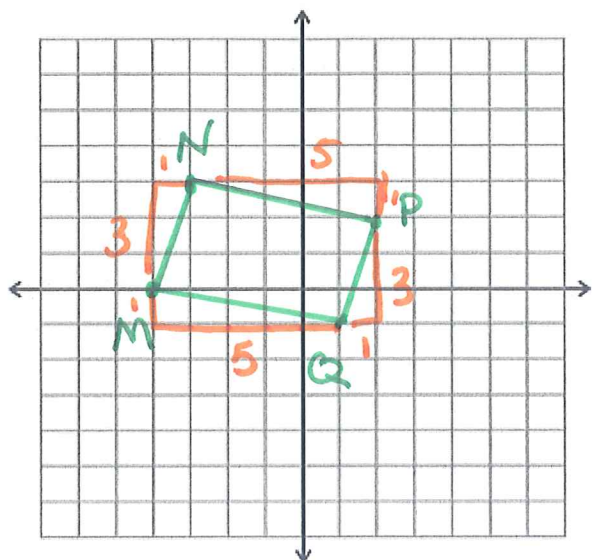
$$A = 3\sqrt{2} \times 3\sqrt{2}$$

$$9\sqrt{4} = 9 \cdot 2 = 18$$

$$\boxed{A = 18 \text{ units}^2}$$

$$\text{OR} \quad 4.2 \times 4.2 \approx 17.64$$

4. $M(-4, 0)$, $N(-3, 3)$, $P(2, 2)$, $Q(1, -1)$



Conclusion:

op. sides are \parallel
 \therefore MNPQ is a
 Parallelogram

Slopes:

$$\text{Slope } NP = -\frac{1}{5}$$

$$\text{Slope } MQ = -\frac{1}{5}$$

$$NP \parallel MQ$$

$$\text{Slope } QP = 3$$

$$\text{Slope } MN = 3$$

$$QP \parallel MN$$

op. sides are
 Parallel

Distances:

$$1^2 + 5^2 = NP^2$$

$$\sqrt{26} = NP$$

$$1^2 + 5^2 = MQ^2$$

$$\sqrt{26} = MQ$$

$$1^2 + 3^2 = QP^2$$

$$\sqrt{10} = QP$$

$$1^2 + 3^2 = MN^2$$

$$\sqrt{10} = MN$$

Perimeter:

$$\sqrt{26} + \sqrt{26} + \sqrt{10} + \sqrt{10} = P$$

$$2\sqrt{26} + 2\sqrt{10} = P$$

OR

$$5.1 + 5.1 + 3.2 + 3.2 = P$$

$$16.6 = P$$

Area:



$$6 \times 4 - 2 \times \frac{1}{2} \times 1 \times 3 - 2 \times \frac{1}{2} \times 5 \times 1$$

$$24 - 3 - 5$$

$$A = 16 \text{ units}^2$$