Review for TEST (Mod 9-10)(UNIT 3) R1

To get a B or better:

- Study this review. Write down the examples!
- Listen and be focused

NOTES REVIEW DAY 1

1.) How do you find perimeter and area of complicated shapes?

- Draw a rectangle for example around the shape.
- Then subtract triangles and rectangles that you create within the shape.

OR

- Add the volume for all shapes that you create

2.) How do we know if it's a

square: 1. Perpendicular diagonals (90°)
2. 4 90°-degree angles in the corners

rhombus: 1. Perpendicular diagonals

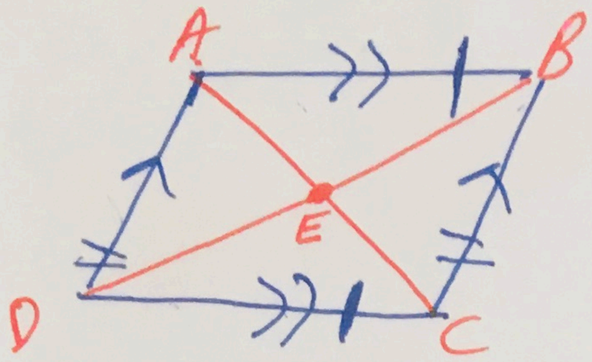
rectangle: 1. The diagonals are congruent
2. 4 90°-degree angles in the corners.

3.) How do we convince others about facts having to do with parallelograms?

- By using theorems about parallel lines, coordinate geometry etc. These then become new theorems that can be used in the future.

REVIEW DAY 1

4.)



If $AB = 2X-3$ and $CD = 4X-13$
what is the length of CD

$2X-3 = 4X-13$
$-2X \quad -2X$
$-3 = 2X-13$
$+13 \quad +13$
$10 = 2X$
$5 = X$

{CD: $4X-13 =$
$4 \cdot 5 - 13 = 7$

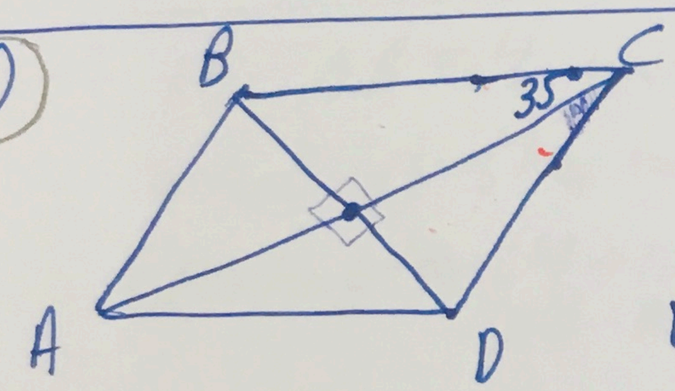
5.) In question 4:

Supplementary angles: (neighbors) 180° together
$\underline{B}$ and $\underline{C}$ or $\underline{A}$ and $\underline{B}$ (adjacent)

Congruent angles: (opposite)
$\underline{B}$ and $\underline{D}$ or $\underline{A}$ and $\underline{C}$ (diagonal)

Congruent sides:
$\overline{AB}$ and $\overline{DC}$ or $\overline{AD}$ and $\overline{BC}$

6.)



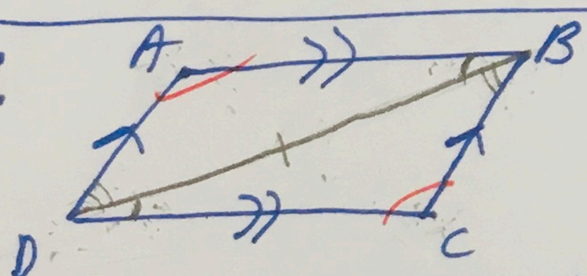
Rhombus

The perimeter of ABCD is 36 cm.

What is $\overline{BC}$? $\frac{36}{4} = 9$ cm

What is $\angle DCA$? 35°

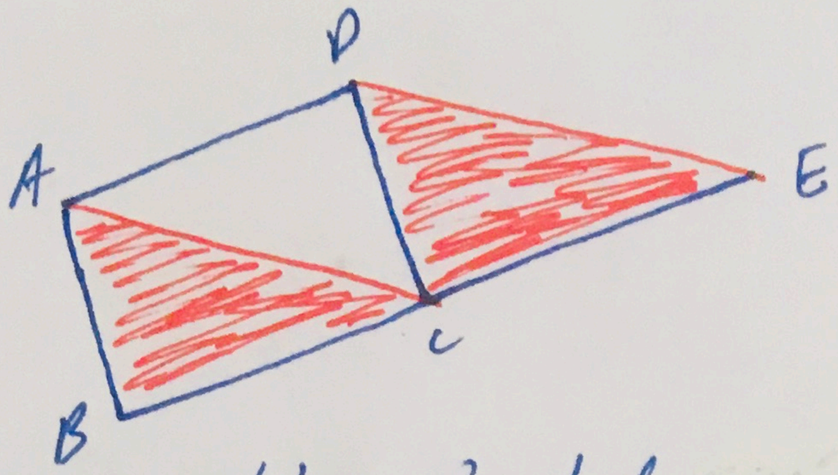
7.



Prove that $\angle BAD \cong \angle DCB$
Given: ABCD is a parallelogram

Statements	Reason
1. ABCD is a parallelogram	1. Given
2. Draw $\overline{BD}$	2. Through any two points, there is one line.
3. $\overline{AB} \parallel \overline{DC}$ & $\overline{AD} \parallel \overline{BC}$	3. Definition of a parallelogram
4. $\angle ABD \cong \angle CDB$ and $\angle CBD \cong \angle ADB$	4. Alternate Interior Angles Th.
5. $\overline{DB} \cong \overline{DB}$	5. Reflexive Prop.
6. $\triangle ADB \cong \triangle BCD$	6. ASA Triangle Congr. Th.
7. $\angle BAD \cong \angle DCB$	7. CPCTC

8.



Are the shaded triangles congruent?

Yes, because:

- AC splits the rectangle in two congruent triangles, △ABC and △CDA.
- DC splits the parallelogram into two congruent triangles, △CDA and △DCE.

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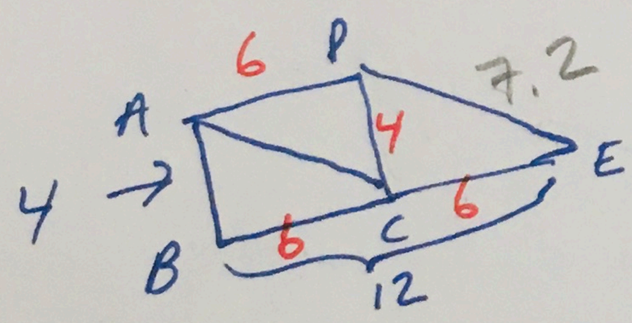
9. If $AB = 4$ and $BE = 12$ what is the area and perimeter?

Perimeter: $4 + 12 + 6 + 7.2 = 29.2\text{cm}$
(AB, BE, AD, DE)



$a^2 + b^2 = c^2$ ← PYTHAGOREAN

$4^2 + 6^2 = DE^2$

$16 + 36 = DE^2$

$52 = DE^2$

$\sqrt{52} = DE$

$7.2 = DE$

Area:

Area for rectangle: $6 \cdot 4 = 24$

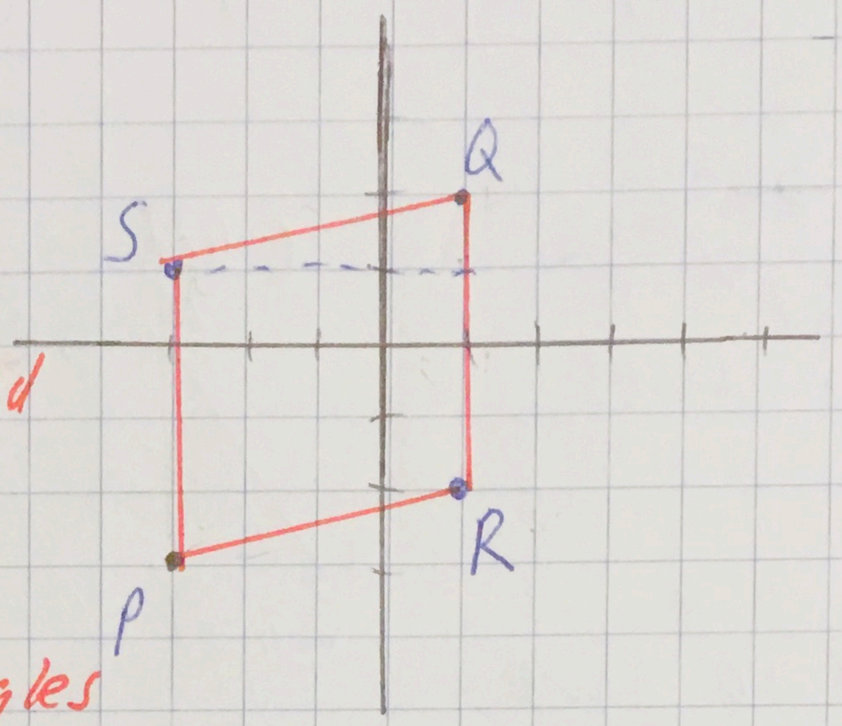
Area for triangle: $\frac{6 \cdot 4}{2} = 12$

$\Big\} 36\text{cm}^2$

REVIEW DAY 2

(10.) Draw the quadrilateral

P(-3,-3) Q(1,2)
R(1,-2) S(-3,1)



a) Most precise name of shape? Justify

slope: $PS = QR$ = undefined

$SQ = PR = \frac{1}{4}$

So two pairs with same slope = Parallelogram at least.

Not a square bc no 90°-angles

Rhombus? Check side lengths.

$SP = QR = 4$ units

$SQ = \sqrt{(-3-1)^2+(1-2)^2} = \sqrt{16+1} = \sqrt{17} = 4.12$ cm

so not a rhombus, just a parallelogram.

b) Perimeter and area?

square (90°) / rhombus (congruent sides) — rectangle (90°)

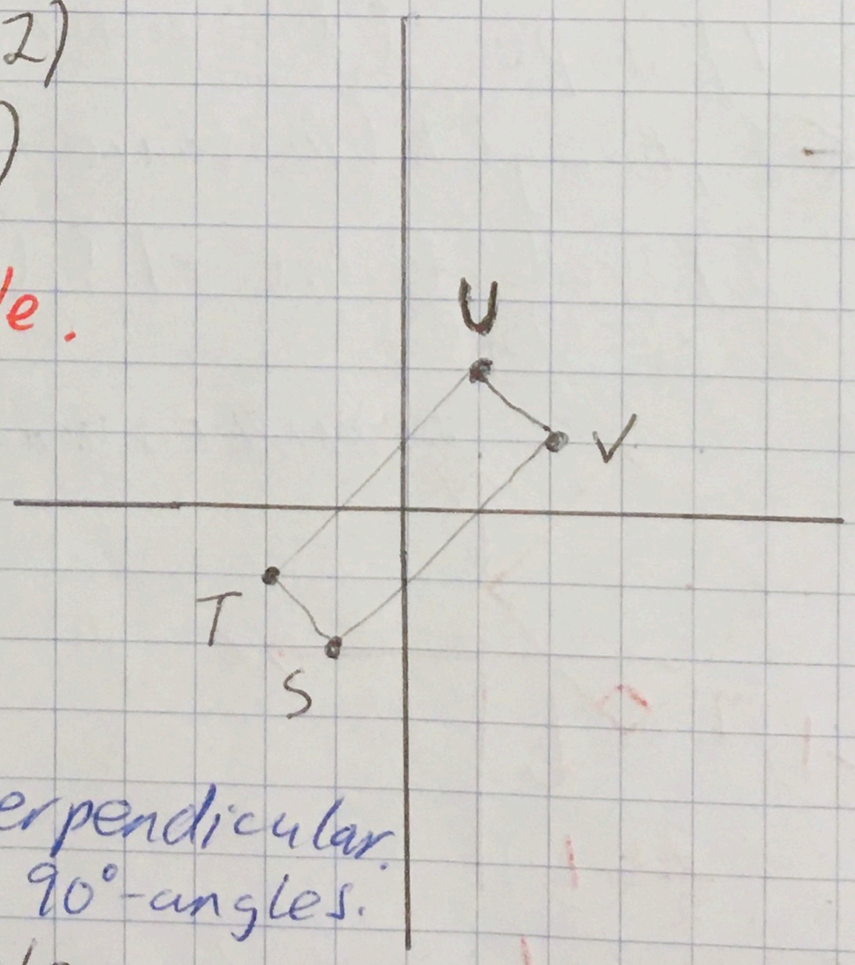
Perimeter: $4.12+4.12+4+4 = \underline{16.24}$

Area: $4 \cdot 4 = \underline{16\ cm^2}$

(11.) Draw

T(-2,-1) S(-1,-2)
U(1,2) V(2,1)

Prove or disprove that it's a rectangle.



Slope: $TS = UV = \frac{1}{-1} = -1$

$TU = SV = \frac{3}{3} = 1$

So two side-pairs so a parallelogram at least.

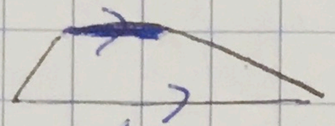
Rectangle?

$(-1)\cdot 1 = -1$ so yes bc perpendicular and hence 90°-angles.

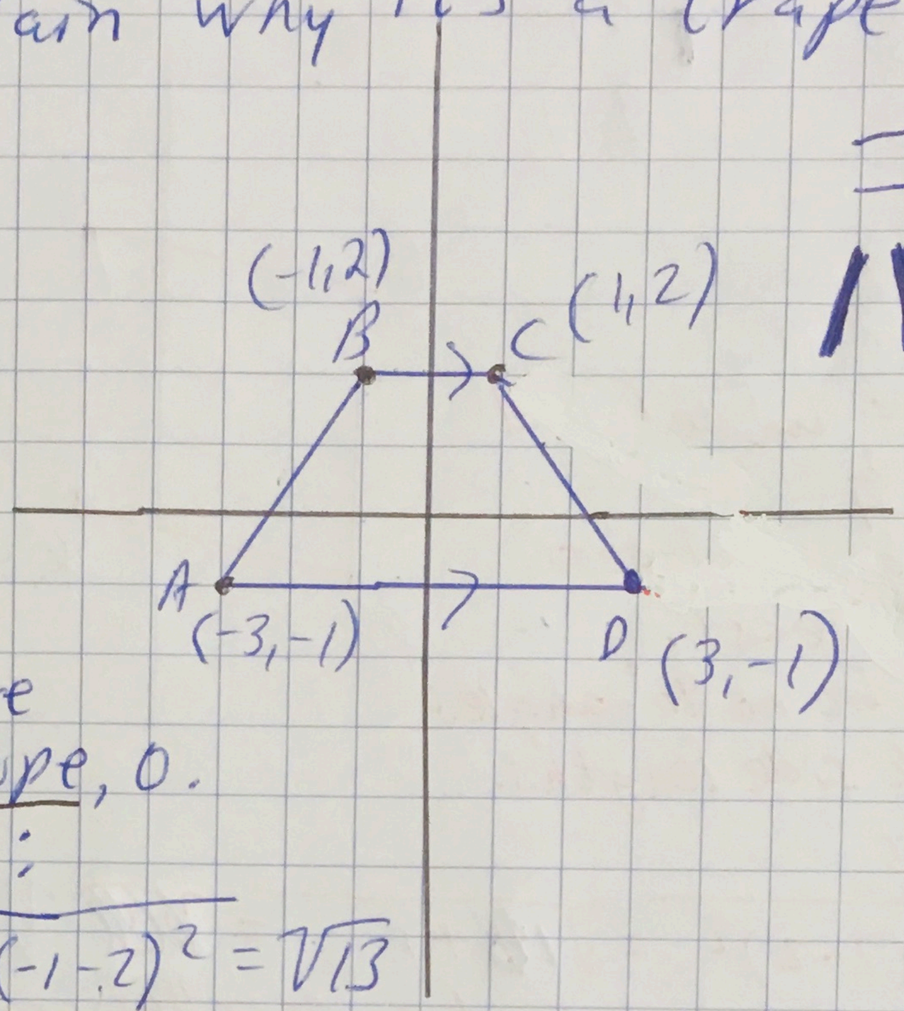
YES, a rectangle.

R5

(12.) Draw an isosceles trapezoid
Explain why it's a trapezoid



not isosceles



= slope: 0
= slope: $\frac{3}{2}$ and $-\frac{3}{2}$

- Bases BC and AD have the same slope, 0.
- AB length:

$$\sqrt{(-3-(-1))^2+(-1-2)^2}=\sqrt{13}$$

CD length:

$$\sqrt{(3-1)^2+(-1-2)^2}=\sqrt{13}$$

So same length.

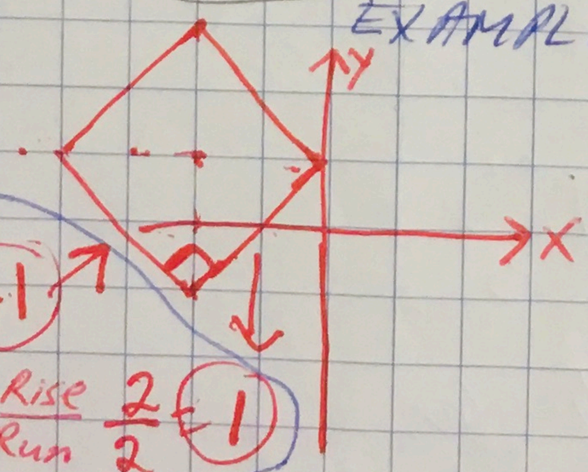
It's a trapezoid and not a parallelogram because only one side pair is parallel, BC and AD.

3 things to check

1.) Slope (Rise over run)
2.) Length (Distance formula) $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$
3.) Products are -1? (90°, i.e. perpendicular)
of slopes

check if necessary. If you move 2 up and 2 to the side like below then you know that sides are congruent. ←

EXAMPLE: What is this shape?



Slope (2 side pairs so a parallelogram)

$\frac{2}{-2}=-1$

$\frac{\text{Rise}}{\text{Run}}\ \frac{2}{2}=1$

$(-1)\cdot 1=-1$

Products are -1 so 90° and perpendicular.

So this would be a square.
(which is also a rectangle)