

MTH 202 - Quiz 6

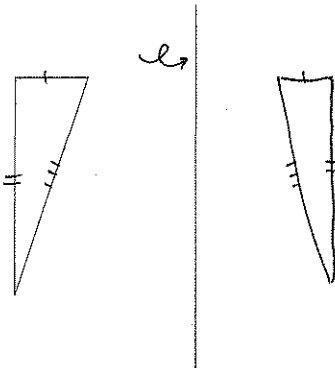
23 October 2015

Name: Solutions

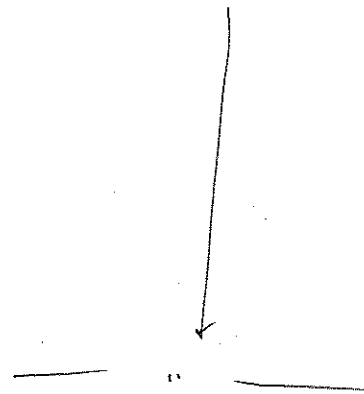
No calculators or other electronic devices are allowed on this quiz. If you need more space to solve a problem, use the back of the paper. In order to receive full credit, show all your work on the problems.

1. (3+3=6 points) Complete the following drawings.

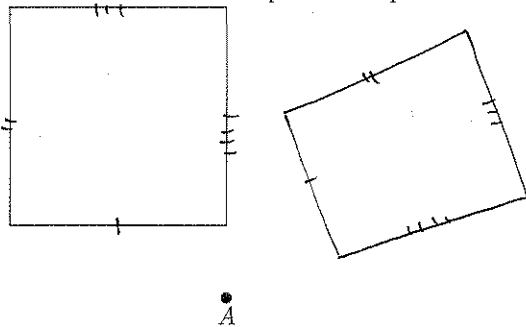
(a) Draw a reflection of the triangle over the provided line segment.



Note how the sides correspond.

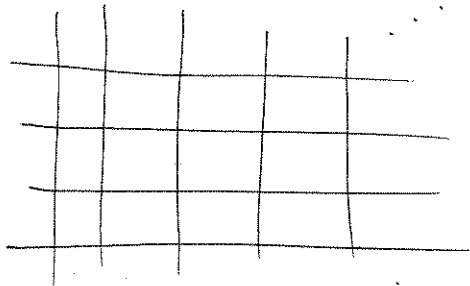


(b) Draw a rotation of the provided square about the point A.

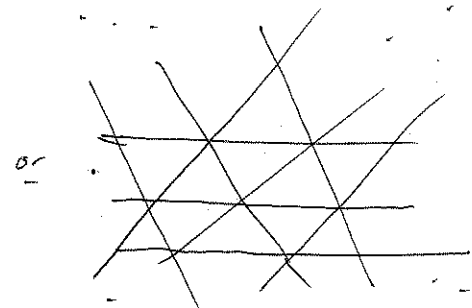


for example.

2. (4 points) Give an example of a tessellation.

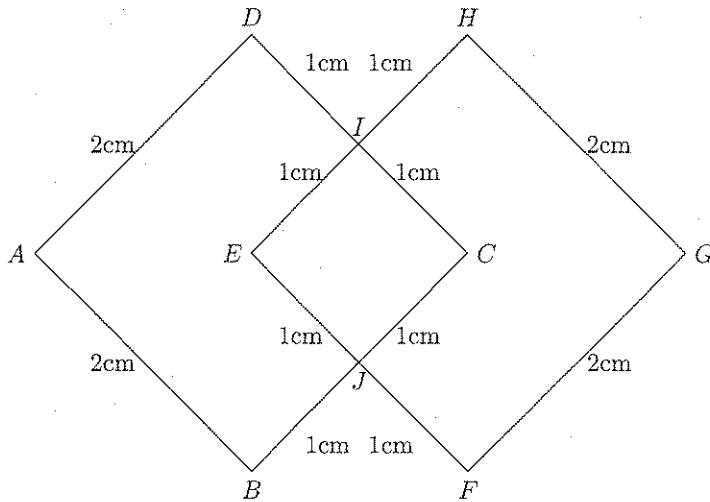


for example.



or

3. (5+5+5=15 points) Find the area and perimeter of the following figures.



(a) ABCD.

This is a $2\text{ cm} \times 2\text{ cm}$ square.

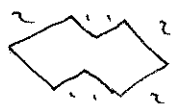
$$\text{Area} = 2\text{ cm} \times 2\text{ cm} = \boxed{4\text{ cm}^2}$$

$$\text{Perimeter} = 2\text{ cm} + 2\text{ cm} + 2\text{ cm} + 2\text{ cm} = \boxed{8\text{ cm}}$$

(b) $ABCD \cup EFGH$.

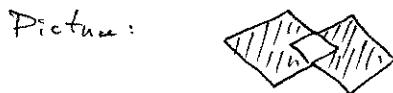
first square second square
 \downarrow \downarrow
 Area (◡) \cup (*) = Area (◡) + Area (*) - Area (◡ \cap *)

Intersection: Square EICJ, area = $1\text{ cm} \times 1\text{ cm} = 1\text{ cm}^2$.

Perimeter:  Add $\rightarrow \boxed{12\text{ cm}}$

$$\therefore 4\text{ cm}^2 + 4\text{ cm}^2 - 1\text{ cm}^2 = \boxed{7\text{ cm}^2}$$

(c) $(ABCD \cup EFGH) \cap EICJ$; that is, the part of the figure inside the two large squares and outside the small square.



Left side: $4\text{ cm}^2 - 1\text{ cm}^2 = 3\text{ cm}^2$

Right side: same.

$$\therefore \text{Area} = 3\text{ cm}^2 + 3\text{ cm}^2 = \boxed{6\text{ cm}^2}$$

Perimeter: As before, 12 cm .

Alternative: $\underbrace{7\text{ cm}^2}_{\text{from b}} - \underbrace{1\text{ cm}^2}_{\text{overlap}} \rightarrow$

N.B. This is a little unclear.

Would also accept 16 cm .