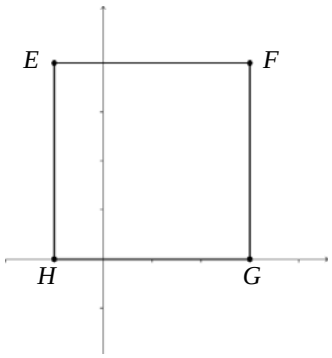
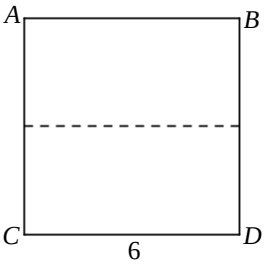
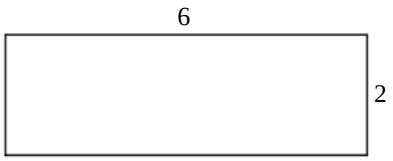
UB SAT 2009
Homework #22
Quadrilaterals
Due: Mon, May 18



1. The coordinates of Point E are $(-1,4)$ and the coordinates of Point H are $(-1,0)$. If $EFGH$ is a square, what are the coordinates of Point F?
   (A) $(3,4)$
   (B) $(3,0)$
   (C) $(3,5)$
   (D) $(4,1)$
   (E) $(4,-1)$

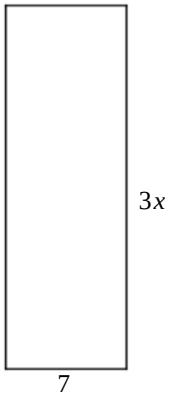


2. The square above is folded on the dotted line so that A is directly on top of C. If the square is folded again so that B is on top of C, what is the length of the side of the new square?
   (A) 2
   (B) 3
   (C) $3\sqrt{2}$
   (D) 4
   (E) $3\sqrt{3}$



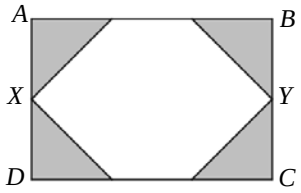
3. How many squares with sides of 1 could fit into the rectangle above?
   (A) 3 (B) 4 (C) 6 (D) 9 (E) 12

4. The area of Rectangle K is three times the area of Rectangle Q. The area of Rectangle Q is twice the area of Rectangle P. If the area of Rectangle Q is 4, what is the difference between the area of Rectangle K and Rectangle P?
   (A) 12 (B) 10 (C) 8 (D) 6 (E) 2



Note: Figure not drawn to scale.

5. If the area of the rectangle above is 42, what is the value of x^2?
   (A) 24
   (B) 21
   (C) 6
   (D) 4
   (E) 2



6. The area of rectangle $ABCD$ is 96, and $AD = \frac{2}{3}(AB)$. Points X and Y are midpoints of AD and BC, respectively. If the 4 shaded triangles are isosceles, what is the perimeter of the unshaded hexagon?

(A) 16

(B) $8+6\sqrt{2}$

(C) 24

(D) $8+16\sqrt{2}$

(E) $16+24\sqrt{2}$

7. The perimeter of a rectangle is $6w$. If one side has length $\frac{w}{2}$, what is the area of the rectangle?

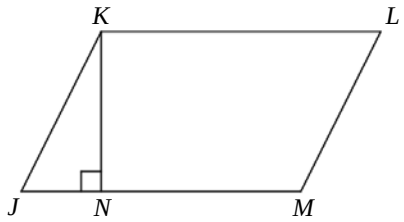
(A) $\frac{w^2}{4}$

(B) $\frac{5w^2}{4}$

(C) $\frac{5w^2}{2}$

(D) $\frac{11w^2}{4}$

(E) $\frac{11w^2}{2}$



8. In the figure above, if the area of parallelogram $JKLM$ is n, and if the length of KN is $n+\frac{1}{n}$, then the length of JM is

(A) $\frac{1}{n}$

(B) $\frac{1}{n+1}$

(C) $n+1$

(D) $\frac{n^2}{n+1}$

(E) $\frac{n^2}{n^2+1}$