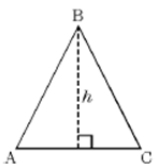
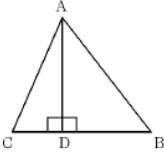
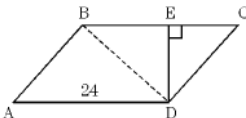
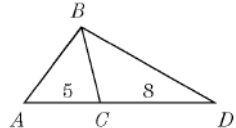
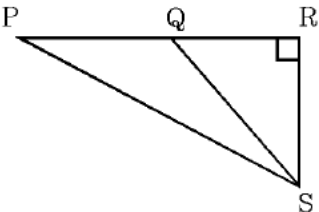
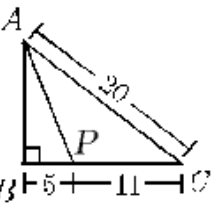


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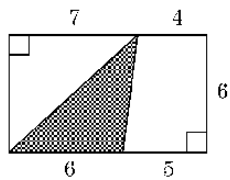
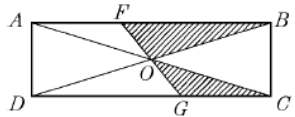
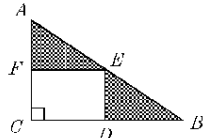
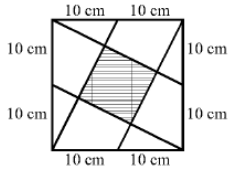
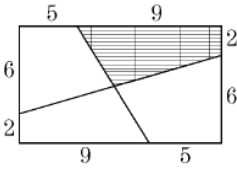
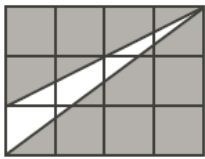
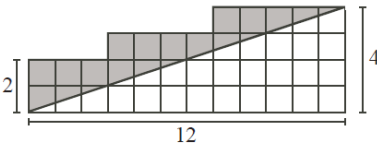
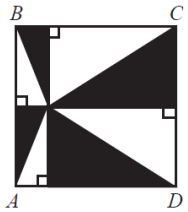
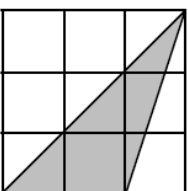
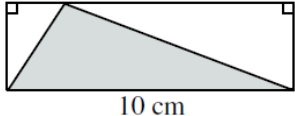
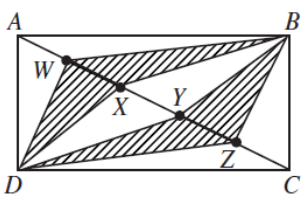
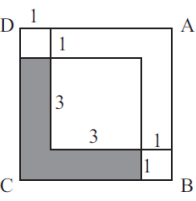
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**Math 8 Honours Section 5.1 Areas of Triangles and Rectangles**

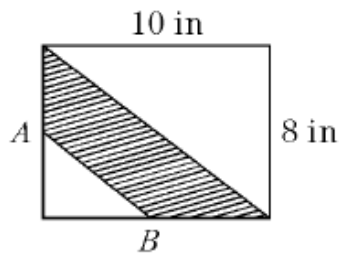
1. Find the area of the following triangles:

<p>a) <math>AC = 5</math> and <math>h = 12</math>. Find <math>\triangle ABC</math></p> 	<p>b) <math>AD = 20</math> and <math>BC = 25</math>. Find <math>\triangle ABC</math></p> 	<p>c) ABCD is a parallelogram, <math>AD = 24</math>, <math>AB = 10</math>, <math>DE = 6</math>, Find <math>\triangle BED</math></p> 
<p>d) If area of <math>\triangle ABC = 20\text{cm}^2</math>, what is the area of <math>\triangle ABD</math>?</p> 	<p>e) If <math>PQ = 12</math>, <math>RS = 8</math>, find <math>\triangle PQS</math></p> 	<p>f) Find <math>\triangle APC</math></p> 

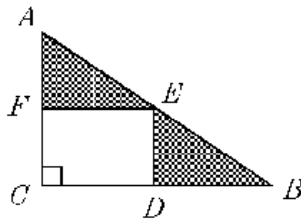
2. Find the area of the shaded region:

<p>a)</p> 	<p>b) <math>AB = 16\text{cm}</math>, <math>AD = 5\text{cm}</math>, O is center.</p> 	<p>c) <math>AC = 8\text{cm}</math>, <math>CB = 12</math>, "F" &amp; "D" are midpoints</p> 
<p>d)</p> 	<p>e)</p> 	<p>f) Each tile is <math>1\text{cm} \times 1\text{cm}</math></p> 
<p>g)</p> 	<p>h) <math>AB = BC = 4\text{cm}</math></p> 	<p>i) Each tile is <math>1\text{cm} \times 1\text{cm}</math></p> 
<p>j)</p> 	<p>k) <math>AB = 9</math>, <math>BC = 5</math>, <math>AW = WX = XY = YZ = ZC</math></p> 	<p>l)</p> 

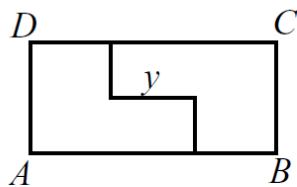
3. Given that A and B are midpoints on the sides of the rectangle shown, what is the number of square inches in the area of the shaded region?



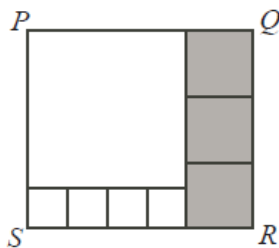
4. Rectangle CDEF is inscribed in  $\triangle ABC$ . In the triangle,  $AC=8$ ,  $CB=12$ , and D and F are midpoints of sides BC and AC respectively. Find the number of square units in the area of the shaded region?



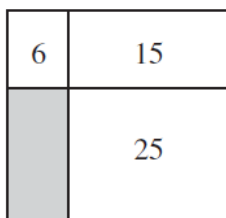
5. The  $8 \times 18$  rectangle ABCD is cut into two congruent hexagons, as shown, in such a way that the two hexagons can be repositioned without overlap to form a square. What is the length of  $y$ ?



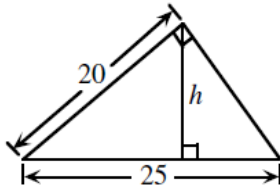
6. Rectangle PQRS is divided into eight squares, as shown. The side length of each shaded square is 10. What is the length of the side of the largest square?



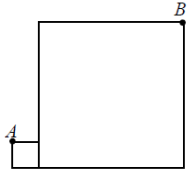
7. A rectangle is divided into four smaller rectangles. The areas of three of these rectangles are 6, 16, and 25, as shown. The area of the shaded rectangle is:



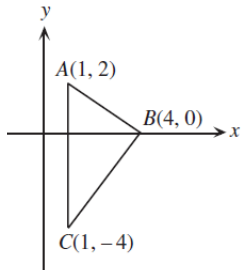
8. In the diagram, find the value of the height "h":



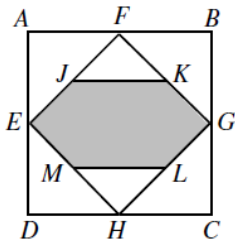
9. The large square has an area of  $81\text{cm}^2$  and the smaller has an area of  $4\text{cm}^2$ . What is the length of the distance from A to B? Express your answer as a radical in simplest form:



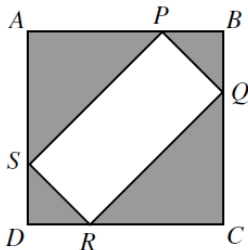
10. Triangle ABC has vertices  $A(1,2)$ ,  $B(4,0)$  and  $C(1,-4)$ . What is the area of  $\triangle ABC$ ?



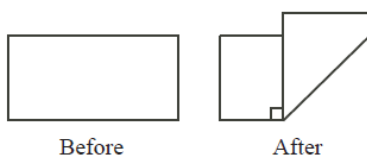
11. The area of square ABCD is 64. The midpoints of its sides are joined to form the square EFGH. The midpoints of its sides are J, K, L, and M. What is the area of the shaded region?



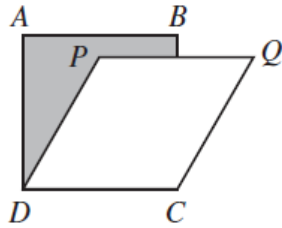
12. In the diagram, two pairs of identical isosceles triangles are cut off of square ABCD, leaving rectangle PQRS. The total area cut off is  $200\text{m}^2$ . What is the length of PR?



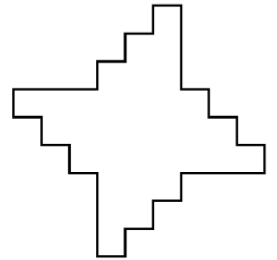
13. A rectangular piece of paper measures  $17\text{cm}$  by  $8\text{cm}$ . It is folded so that a right angle is formed between the two segments of the original bottom edge, as shown. What is the area of the new figure?



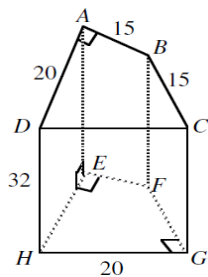
14. In the diagram, ABCD is a square with an area of  $25\text{cm}^2$ . If PQCD is a rhombus with area  $20\text{cm}^2$ , what is the area of the shaded region?



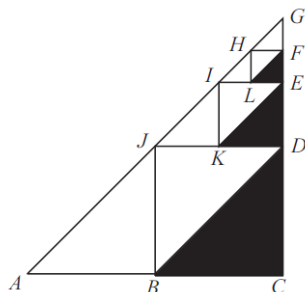
15. In the diagram adjacent edges are at right angles. The four longer edges are equal in length, and all of the shorter edges are also equal in length. The area of the shape is 528. What is the perimeter? (1997 Pascal)



16. In the diagram, the right prism has quadrilateral base EFGH with right angles at E and G. The height AE is 32. What is the distance from A to G?

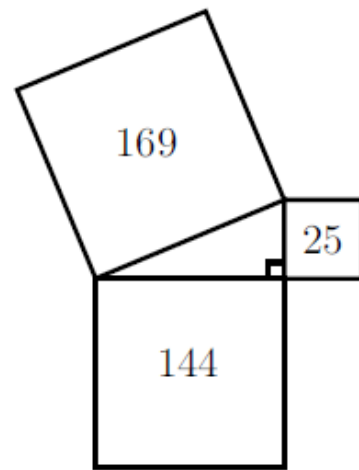


17. Point B, D, and J are midpoints of the sides of the right triangle ACG. Points K, E, I are midpoints of the sides of triangle JDG, etc. If the dividing and shading process is done 100 times (the first three are shown) and  $AC=CG=6$ , then what is the total area of the shaded triangles?

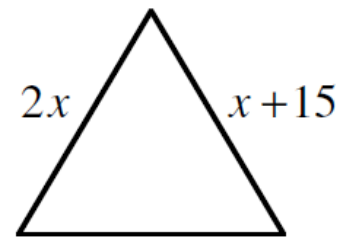


Given the areas of the three squares in the figure, what is the area of the interior triangle?

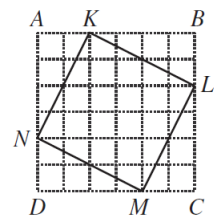
- (A) 13 (B) 30 (C) 60 (D) 300 (E) 1800



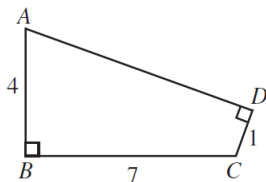
18. The equilateral triangle has sides of  $2x$  and  $x + 15$  as shown. Determine the area of the triangle. (1999 Gauss)



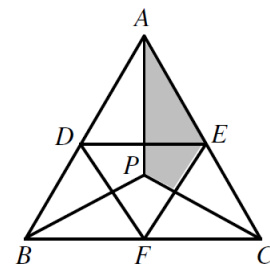
19. In the diagram, square  $ABCD$  is made up of 36 squares, each with side length 1. What is the area of the square  $KLMN$ , in square units? (2003 Gauss)



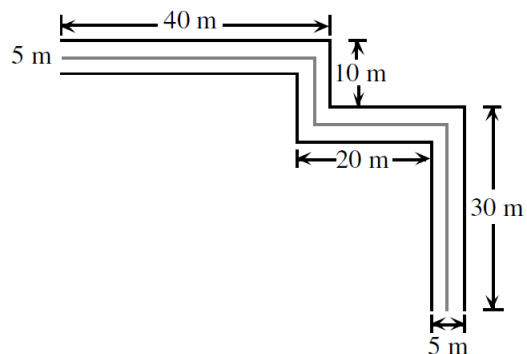
20. In the diagram, what is the area of quadrilateral  $ABCD$ ?



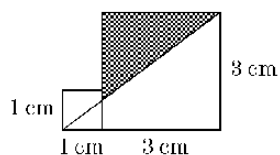
21. In equilateral triangle  $ABC$ , line segments are drawn from a point  $P$  to the vertices  $A$ ,  $B$  and  $C$  to form three identical triangles. The points  $D$ ,  $E$  and  $F$  are the midpoints of the three sides and they are joined as shown in the diagram. What fraction of  $\triangle ABC$  is shaded? (2000 Gauss)



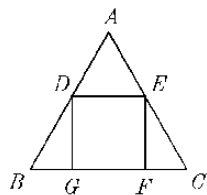
22. A paved pedestrian path is 5 metres wide. A yellow line is painted down the middle. If the edges of the path measure 40 m, 10 m, 20 m, and 30 m, as shown, what is the length of the yellow line? (2000 Gauss)



What is the area in square centimeters of the shaded region in the figure? Express your answer as a decimal.

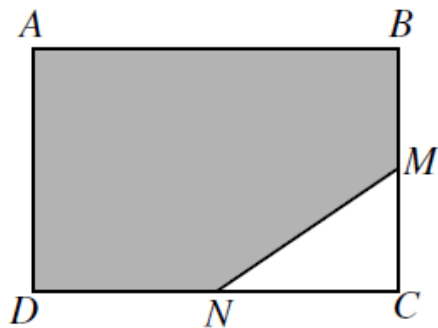


$\triangle ABC$  is an equilateral triangle, and  $DEFG$  is a square of side 6 inches. Find the length, in inches, of a side of  $\triangle ABC$ .



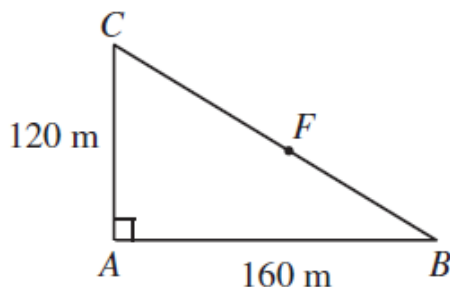
$ABCD$  is a rectangle, with  $M$  the midpoint of  $BC$  and  $N$  the midpoint of  $CD$ . If  $CM = 4$  and  $NC = 5$ , what percent of the area of the rectangle is shaded?

- (A) 70                      (B) 78                      (C) 80  
(D) 87.5                      (E) 75



In the diagram,  $ABC$  represents a triangular jogging path. Jack jogs along the path from  $A$  to  $B$  to  $F$ . Jill jogs from  $A$  to  $C$  to  $F$ . Each jogs the same distance. The distance from  $F$  to  $B$ , in metres, is

- (A) 40                      (B) 120                      (C) 100  
(D) 80                      (E) 200



Square  $PQRS$  has an area of 900.  $M$  is the midpoint of  $PQ$  and  $N$  is the midpoint of  $PS$ . What is the area of triangle  $PMN$ ?

- (A) 100                      (B) 112.5                      (C) 150  
(D) 225                      (E) 180

