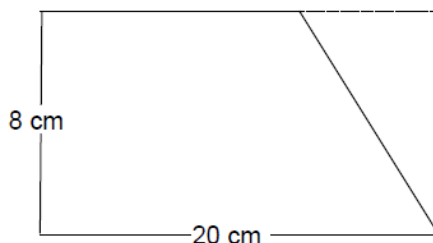




Maths

1. A piece of card, 7 cm by 11 cm, has a square hole cut out of it. A second piece of card 8cm by 13cm, has four square holes, the same size as the first, cut out of it. The area of card left is the same in each case. What is the side length of the hole?
2. Solve the equation $x = \frac{5-x}{2} + 1$
3. In a school, there are 47 pupils in year ten. Seven girls are in the netball team and twelve girls are in the lacrosse team. Three girls are in both teams and nine girls are in neither team. How many boys are there in year ten?
4. a. Factorise
 - i. $x^2 - 10x + 21$
 - ii. $x^2 - 49$b. When $x = 103$, find the value of $\frac{x^2 - 10x + 21}{x^2 - 49}$ as a fraction in its lowest terms.
5. In the diagram, a corner has been cut off a rectangle measuring 8cm by 20cm. The area of the shape formed is 136cm^2 . What is the perimeter of the shape?



6. Two cylinders have the same volume. The height of the first cylinder is 50cm, and its radius is 3cm.
 - a. What is the volume of the first cylinder? Write your answer as a multiple of π .
 - b. The height of the second cylinder is 18cm. Find the radius of the second cylinder.
7. One hundred and seven people get together in teams to take part in a quiz. Each team has three, four or five members. There are twenty-seven teams altogether and there are twice as many teams with four members as there are teams with three members. How many teams have five members?
8. a. What are the co-ordinates of the point where the line $y = 2x - 5$ meets the line $y = 23$?
b. What is the area of the triangle enclosed by the three lines $y = 2x - 5$, $y = 23$ and $x = -6$?