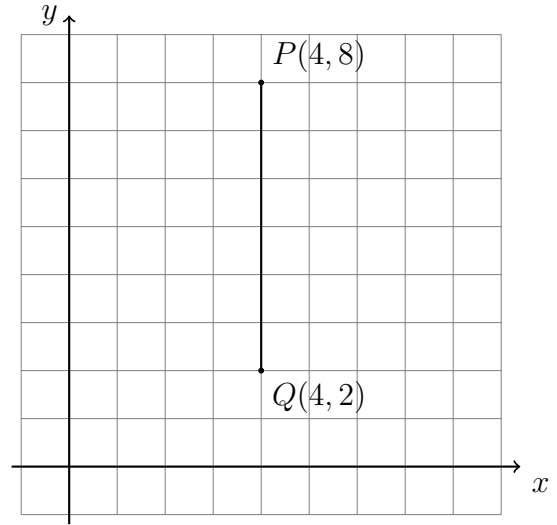


3.1 Parallelogram and triangle area

1. Do Now: The vertical line segment \overline{PQ} is plotted on the coordinate plane with $P(4, 8)$ and $Q(4, 2)$.

Find the length PQ .

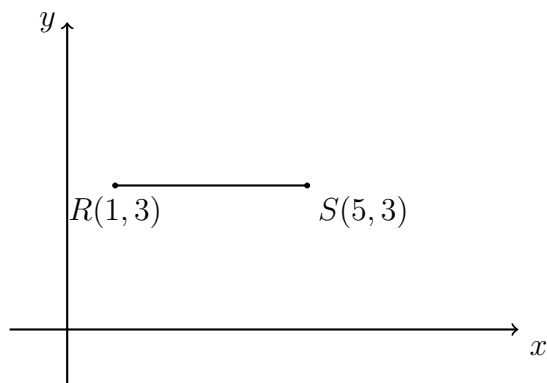
Show the calculation, including the absolute value bars. Count on the grid as a check. (leave marks)



2. The horizontal line segment \overline{RS} is plotted on the coordinate plane with $R(1, 3)$ and $S(5, 3)$.

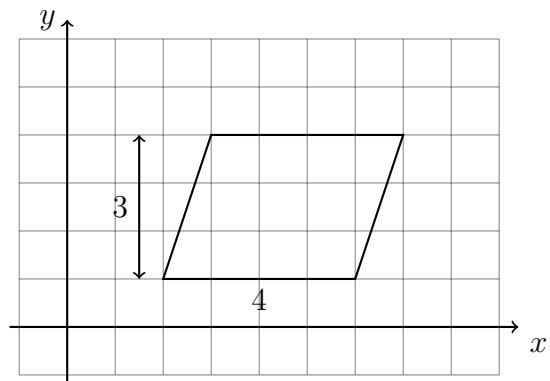
Find the length RS .

Show the calculation.



3. A parallelogram is shown on the x - y plane having a base $b = 4$ and height $h = 3$.

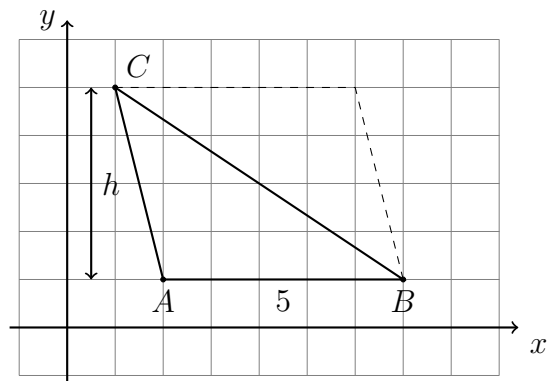
Find its area, showing the calculation.



4. The $\triangle ABC$ is shown below with $A(2, 1)$, $B(7, 1)$, and $C(1, 5)$. The length of the base of the triangle is $AB = 5$.

(a) Find the height h .

(b) Find its area, showing the calculation.



5. Spicy: Find the area of the $\triangle ABC$ is shown below with $A(3, 2)$, $B(7, 4)$, and $C(4, 8)$.

(a) First find the area of the red rectangle with sides $b = 4$, $h = 6$.

(b) Find the area of the three triangles surrounding $\triangle ABC$ in the rectangle.

(c) Subtract their areas from the rectangle to find $A_{\triangle ABC}$

