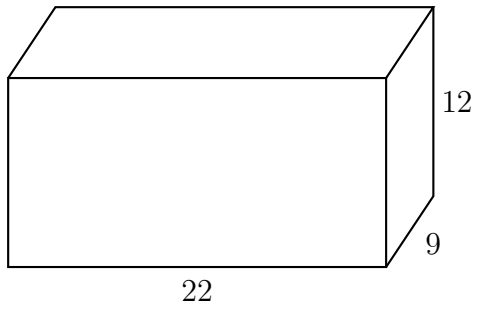
4.4 Homework: Area and volume situations

1. Find the area of rectangle $ABCD$ having length $l = 10$ and width $w = 3\frac{3}{4}$. Start with a formula of this form, substituting the given values:

   $A = l \times w$

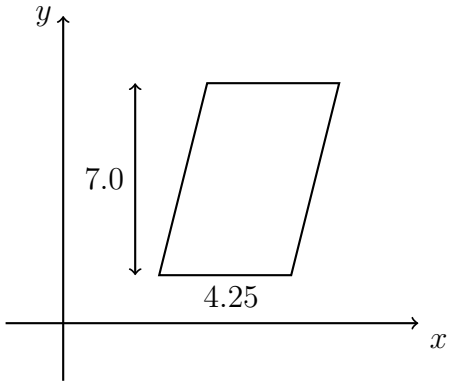
2. Find the volume of a rectangular prism (box). Its length is $l = 22$ inches, its height $h = 12$ inches, and depth is $w = 9$ inches. Start with the equation

   $V = l \times w \times h$



3. A parallelogram is shown on the x-y plane having a base $b = 4.25$ and height $h = 7.0$.

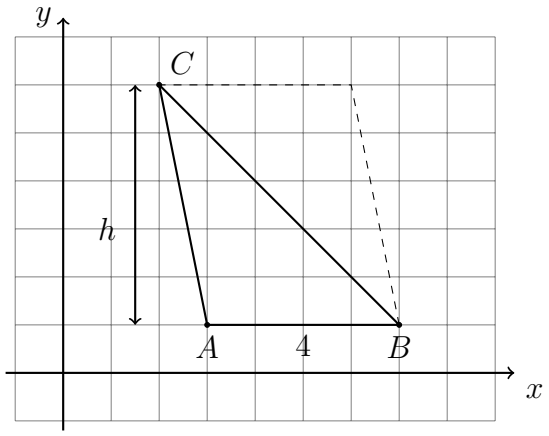
   Find its area, showing the calculation.



4. The $\triangle ABC$ is shown below with $A(3, 1)$, $B(7, 1)$, and $C(2, 6)$. The length of the base of the triangle is $AB = 4$.

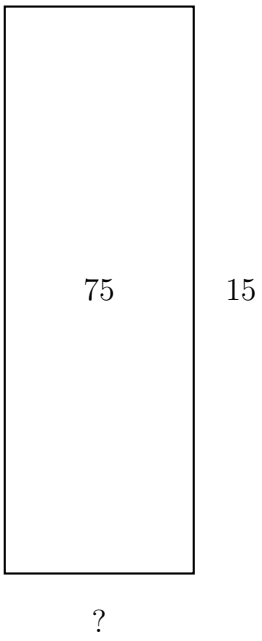
(a) Find the height h.

(b) Find the triangle's area, showing the calculation.



5. Find the width of the base of a rectangle with area $A = 75$ and height $h = 15$. Start with the form (use b or x):

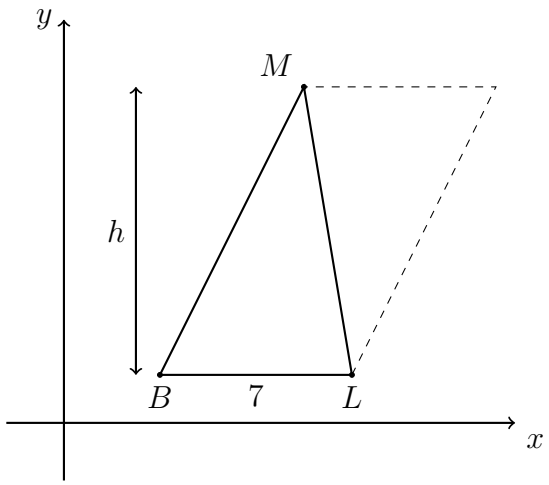
   $A = b \times h = 75$



6. Find the height of the $\triangle BLM$, having an area of $A = 42$ and base $BL = 7$.

   Start by substituting values in the area formula:

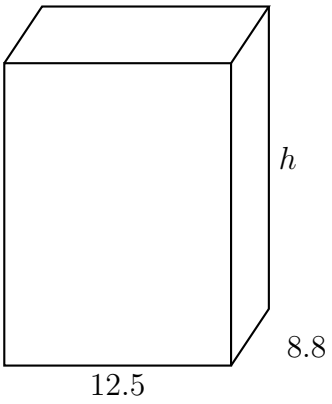
   $A = \frac{1}{2}bh = 42$



7. The rectangular prism shown has a volume of $V = 1815$ cubic centimeters. Its base measures $l = 12.5$ cm by $w = 8.8$ cm.

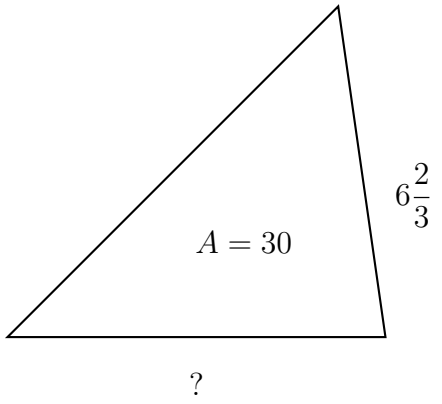
   Find its height in centimeters. Begin by writing the following formula with values substituted:

   $V = l \times w \times h = 1815$



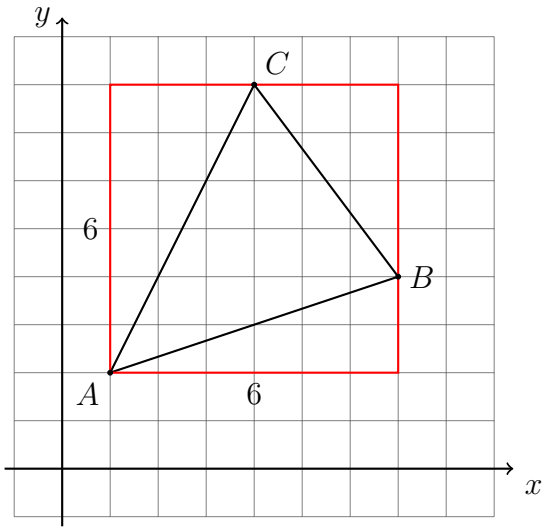
8. Find the length of the base of a triangle with area $A = 30$ and height $h = 6\frac{2}{3}$. Start with the form (use b or x):

   $A = \frac{1}{2} \times b \times h = 30$



9. Find the area of the $\triangle ABC$, shown below, with $A(1, 2)$, $B(7, 4)$, and $C(4, 8)$.

   Hint: Subtract the areas of the three right triangles from the area of the red square.



10. A rectangular prism has a square base. Its volume is $V = 162$ cubic centimeters and its height is $h = 8$ cm.

    Calculate the dimensions of its base.