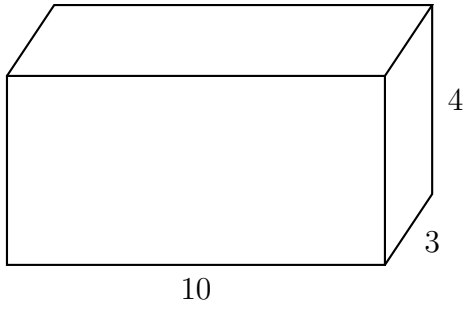
3.10 Solving for dimensions given a volume

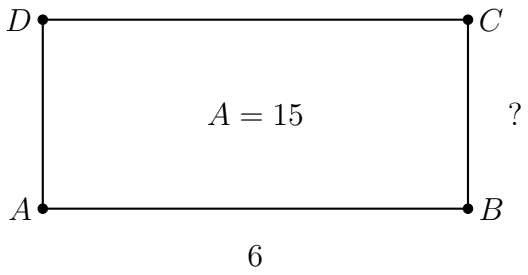
1. Do Now: Find the volume of a rectangular prism (box). Its length is $l = 10$ feet, its height $h = 4$, and depth is $w = 3$ feet. Start with the equation

   $V = l \times w \times h$



2. Rectangle $ABCD$ has area $A = 15$ and base $b = 6$ but unknown height. Write an equation then solve. Start with this form (for the unknown, use h, x, or BC) and state your answer as a fraction:

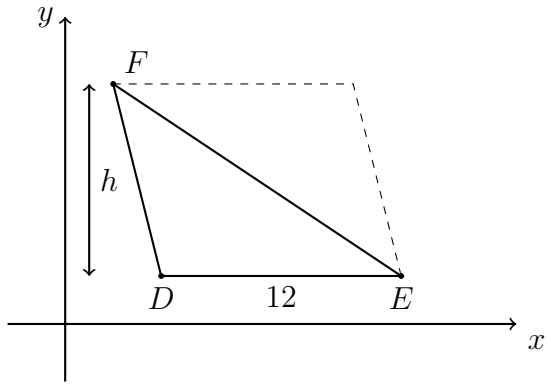
   $A = b \times h = 15$



3. The $\triangle DEF$ has an area $A = 54$ and base $DE = 12$.

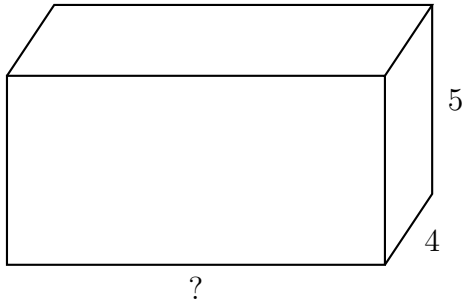
   Find its height, starting with an equation.

   $A = \frac{1}{2}bh = 54$



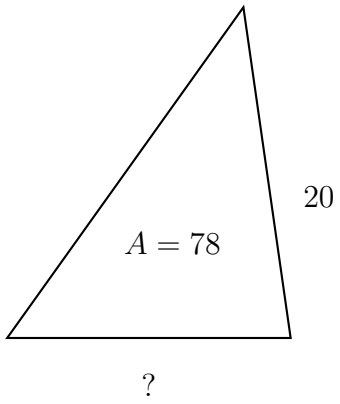
4. The volume of a rectangular prism (box) is $V = 110$ cubic feet. Its height is $h = 5$ feet and depth of $w = 4$ feet. Find its length. Start with the equation

   $V = l \times w \times h = 110$



5. Find the length of the base of a triangle with area $A = 78$ and height $h = 20$. Express your result as a decimal. Start with the form (use b or x):

   $A = \frac{1}{2} \times b \times h = 78$



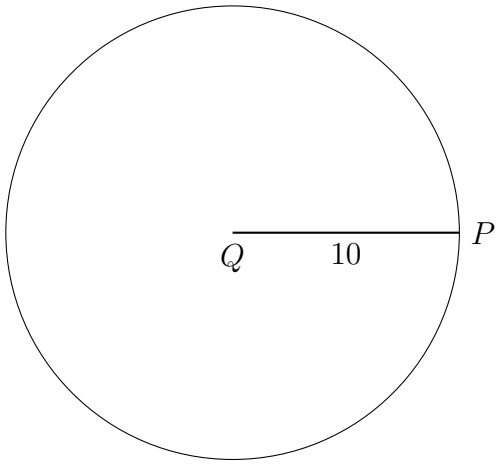
6. Find the area of the given circle Q with radius $r = 10$ centimeters.

   Start with the formula

   $A = \pi r^2$

   (a) State the area in terms of π

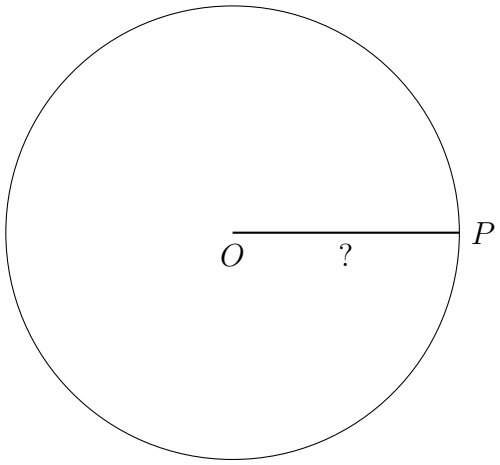
   (b) Now round to the nearest hundredth



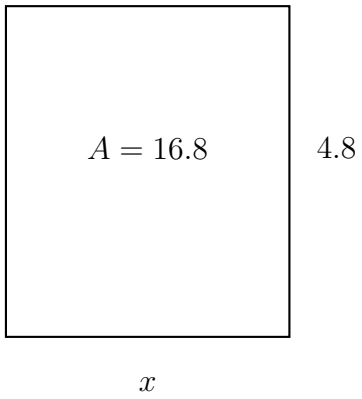
7. Given circle O with area $r = 49\pi$ square centimeters.

   Find the radius of circle, OP. Start with the formula

   $A = \pi r^2 = 49\pi$



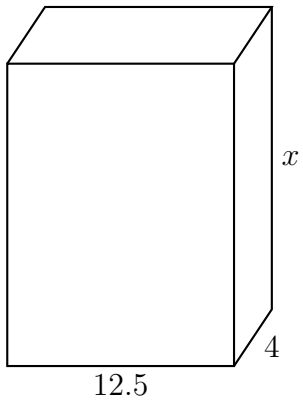
8. Find the base of a rectangle with area $A = 16.8$ and height $h = 4.8$, expressed as a decimal. First write an equation substituting the given values in the area formula.



9. A rectangular prism (shown below) has a volume $V = 925$ cubic feet. Calculate the area of its base and then solve for its height.

   (a) The base measures 12.5 by 4 in feet. Find its area.

   (b) Find the prism's height, x.



10. Find the radius and circumference of circle O with diameter $D = 14$ centimeters.

(a) Write down the radius.

(b) State the circumference in terms of π

(c) Express the circumference as a decimal, rounding to the nearest tenth.