

### 3.11 Quiz: area and volume situations

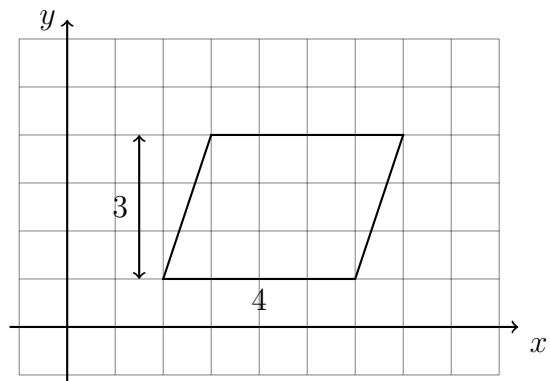
1. Find the area of rectangle  $ABCD$  having length  $l = 12$  and width  $w = 4\frac{1}{2}$ . Start with a formula of this form, substituting the given values:

$$A = l \times w$$



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

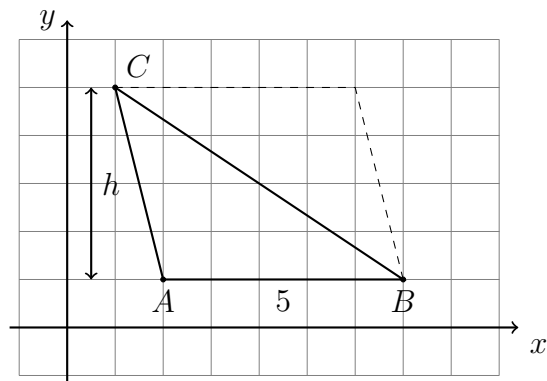
Find its area, showing the calculation.



3. 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  $AB = 5$ .

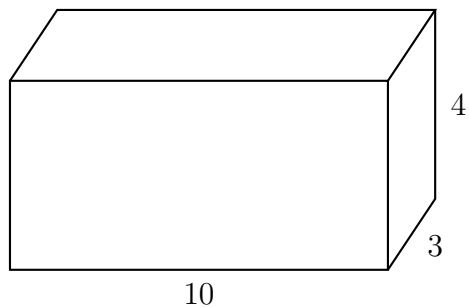
(a) Find the height  $h$ .

(b) Find its area, showing the calculation.



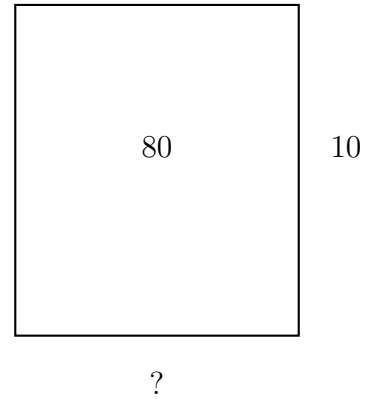
4. Find the volume of a rectangular prism (box). Its length is  $l = 10$  feet, its height  $h = 4$ , and depth is  $w = 3$  feet. Start with the equation

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



5. Find the length of the base of a rectangle with area  $A = 80$  and height  $h = 10$ , expressed as a fraction. Start with the form (use  $b$  or  $x$ ):

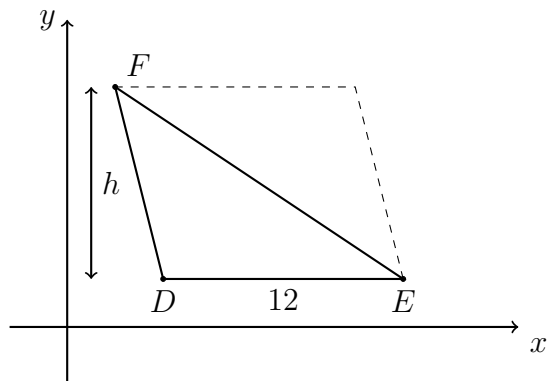
$$A = b \times h = 80$$



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

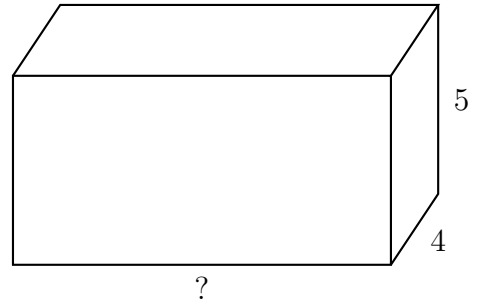
Find its height, starting with an equation.

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



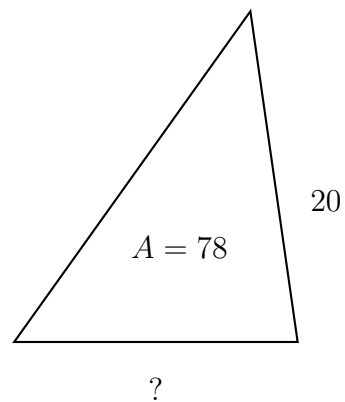
7. The volume of a rectangular prism (box) is  $V = 110$  cubic feet. Its height is  $h = 5$  feet and depth of  $w = 4$  feet. Find its length. Start with the equation

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



8. 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  $x$ ):

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





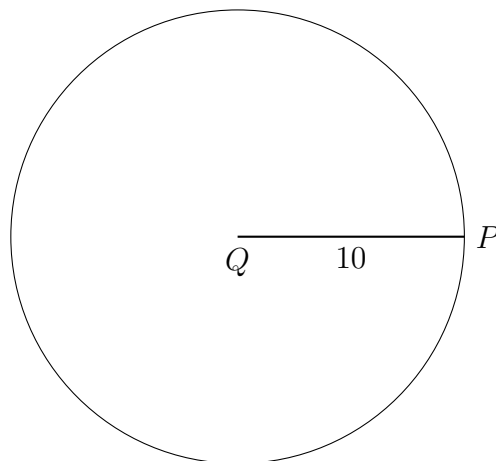
9. Find the area of the given circle  $Q$  with radius  $r = 10$  centimeters.

Start with the formula

$$A = \pi r^2$$

- (a) State the area in terms of  $\pi$

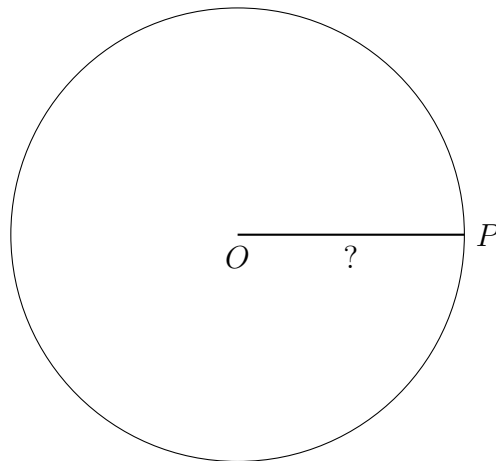
- (b) Now round to the nearest hundredth



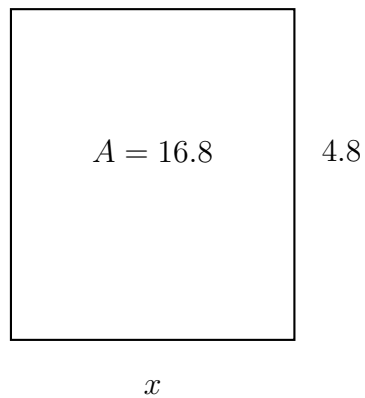
10. Given circle  $O$  with area  $r = 49\pi$  square centimeters.

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

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



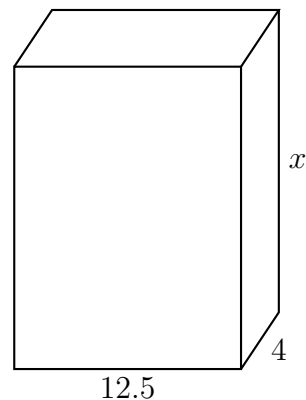
11. Find the base of a rectangle with area  $A = 16.8$  and height  $h = 4.8$ , expressed as a decimal. First write an equation substituting the given values in the area formula.



12. 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,  $x$ .

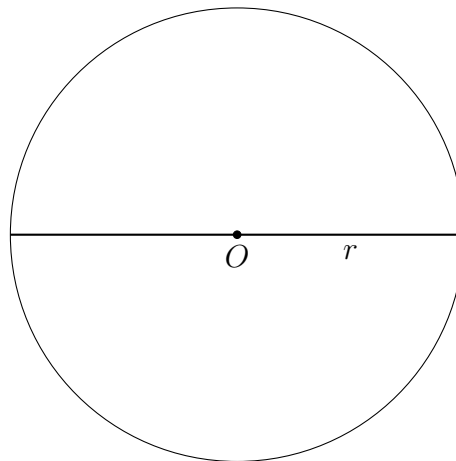


13. Find the radius and circumference of circle  $O$  with diameter  $D = 14$  centimeters.

(a) Write down the radius.

(b) State the circumference in terms of  $\pi$

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



14. 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  $A_{\triangle ABC}$

