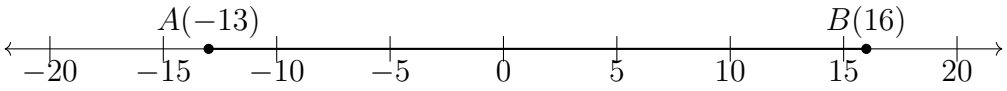
## 1.12 Test: Length and area

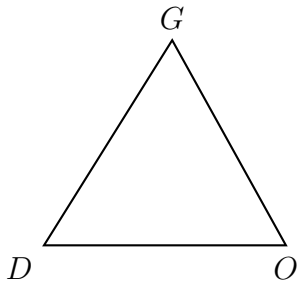
*Show units if given. Show calculation as an equation, starting with a capitalized variable.*

### Line segments, length, number lines

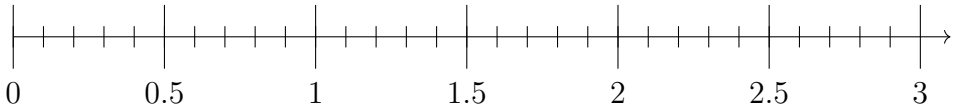
1. Points $A = -13$ and $B = 16$ are shown below. Find the length of segment $\overline{AB}$.




2. Isosceles $\triangle DOG$ has congruent sides $\overline{DO} \cong \overline{DG}$. Mark the congruencies with tick marks on the diagram.



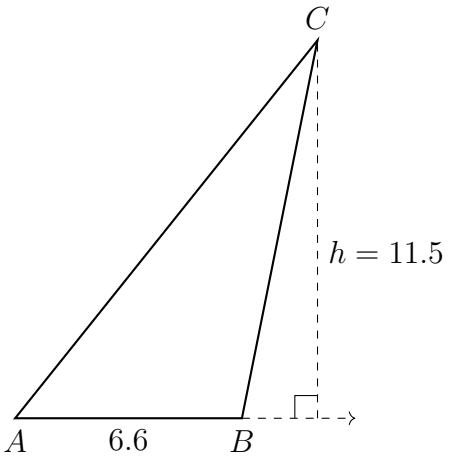

3. Mark and label irrational number $\sqrt{2} = 1.41421356...$ on the number line below.



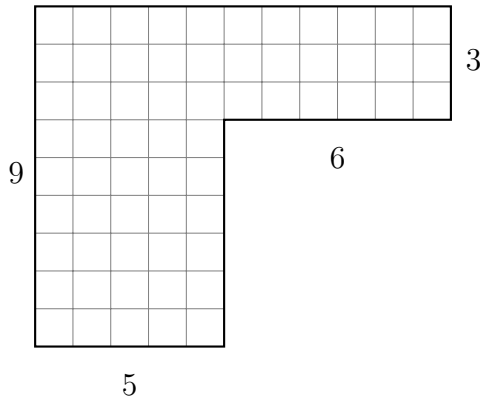

### Perimeter and area

4. Measure and mark the lengths of the sides of the rectangle in centimeters. Find its area.

5. Find the area of the triangle $ABC$. The $\triangle$'s height is $h = 11.5$ and its base measures $AB = 6.6$.



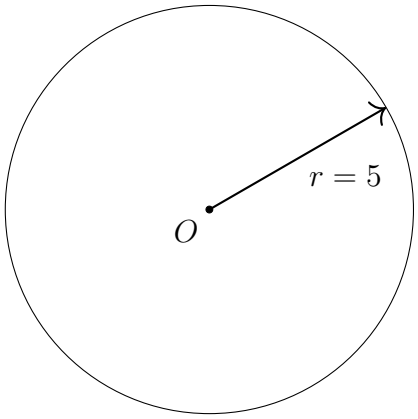

6. Find the area of the compound rectangular shape. Show the calculation as the sum of two rectangles.



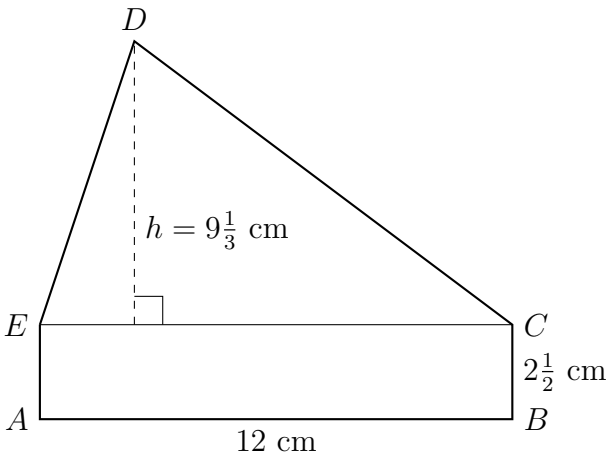

7. Given the circle $O$ with radius $r = 5$. Leave exact answers, in terms of $\pi$.

   (a) Find the circumference of circle $A$.

   (b) Find the area of the circle.



8. A triangle with 12 centimeter base and $9\frac{1}{3}$ cm height lies on top of a rectangle with the same base $AB = 12$ cm and a width of $2\frac{1}{2}$ cm. Find the area of the combined figure.




**Precision, percent error**

9. Round each value to the *nearest thousandth*.

   (a) $2\pi$ (b) $\sqrt{3}$

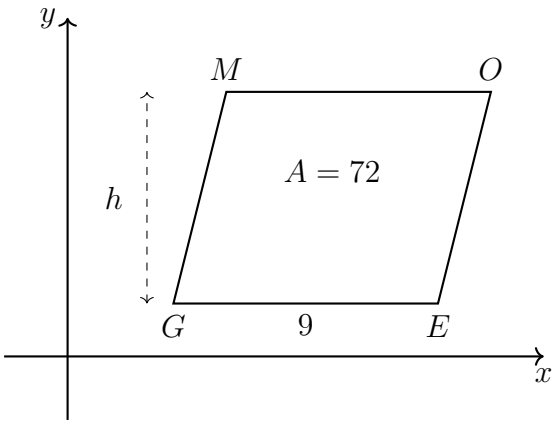
10. Find the height in meters of a person 61 inches tall. Round to the *nearest hundredth of a meter* (i.e. nearest centimeter).

11. A palindrome is a word, phrase, or number that reads the same backwards and forwards. (e.g. "level", "racecar"). Find the % error in this palindromic approximation of pi.

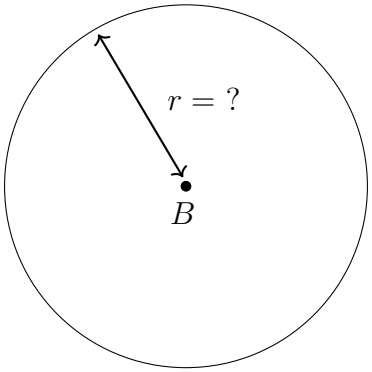
$$\pi \approx \frac{666}{212}$$

**Modeling situations and solving with algebra**

12. The parallelogram $GEOM$ has an area $A = 72$ and base $GE = 9$. Find its height $h$.




13. The circle $B$ has an area of $A = 36\pi$ square centimeters. Find the radius $r$.




Start with the formula

$A = \pi r^2 = 36\pi$

14. Given $\overline{PQR}$, with $PQ = 2x + 4$, $QR = x + 3$, and $PR = 22$. Find $PQ$. (show check)