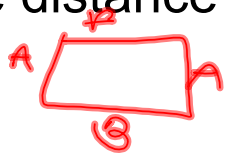
Parallelogram:

* A quadrilateral with 2 pair of parallel sides.

* Opposite sides are congruent.

* Perimeter: The distance around the figure.

P = 2a + 2b

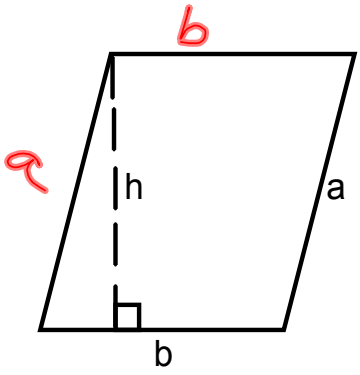


* Area: How much space is covered.

A = bh (b = base, h = height)

The base and height must be ⊥

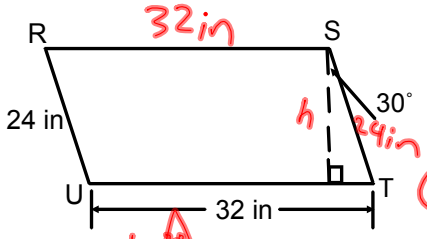
Because the square and rectangle are special parallelograms these formulas will work for them as well.



$P = (2a + 2b)\ u$

$A = (bh)\ u^2$

1. Find the area and perimeter of parallelogram RSTU.



$P = 2a + 2b$

$P = 2(32) + 2(24)$

$P = 64 + 48$

$P = 112$ in

$A = bh$

$b = 32$

$h = 12\sqrt{3}$

$A = (32)(12\sqrt{3})$

$A = 665.1$ in^2

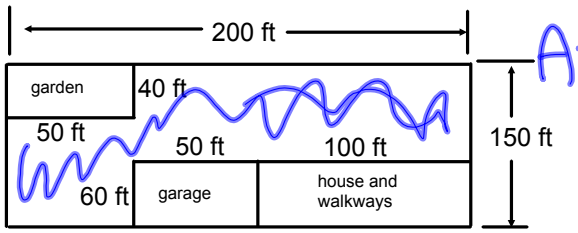
alternate way

CAH

$\cos 30° = \frac{h}{24}$

$h \approx 20.784\ldots$

2. The Kanes are planning to sod their yard. Find the number of square yards of grass needed.



$A = lw$

$A = 30000 - 50(40) - 60(50) - 60(100)$

$A = 30000 - 2000 - 3000 - 6000$

$A = 19000$ ft^2

1 yd = 3 ft

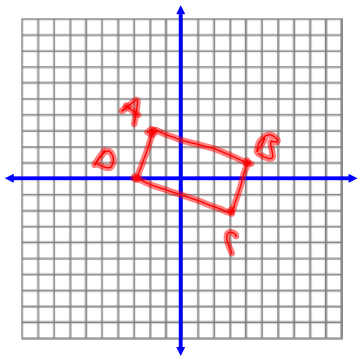
$A = \frac{19000}{3^2}$

$A = 2111.1$ yds^2

3. The vertices of a quadrilateral are at:
   A (-2, 3), B (4,1), C (3,-2), and D (-3,0)

   a. Determine whether the quadrilateral is a square, rectangle, or parallelogram.

   b. Find the area of ABCD.



$AC = \sqrt{50}$

$BD = \sqrt{50}$

Diagonals =, its a rectangle