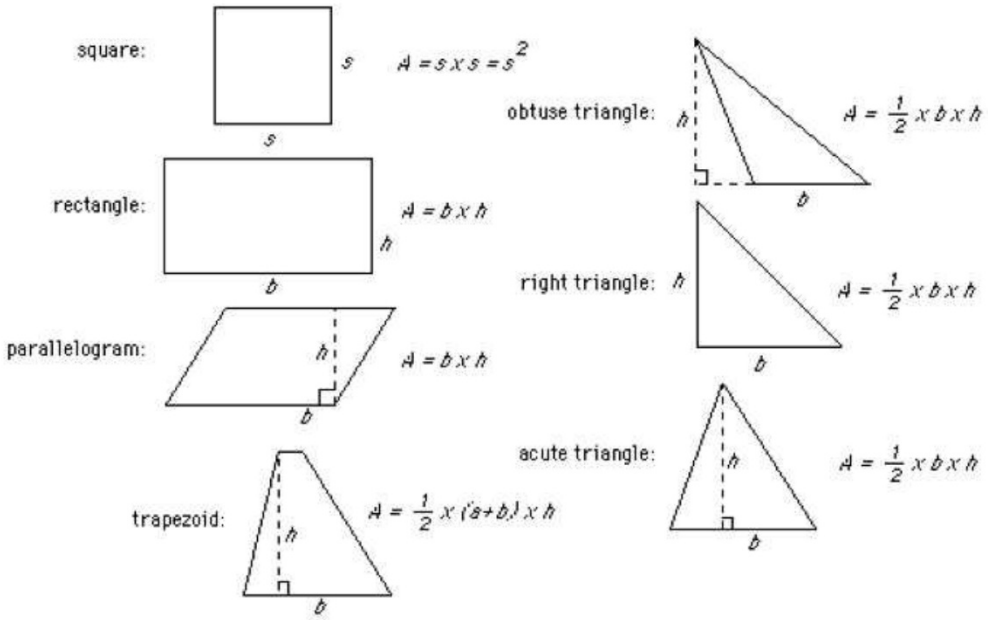
Geometry 1: Basics

Homework:
my-imaths: follow slides.
page 537-3D: all+ page 539-3E: all
Page 105-3H:all+ page 108-3J: all



Pre-assumed knowledge

- Perimeter:

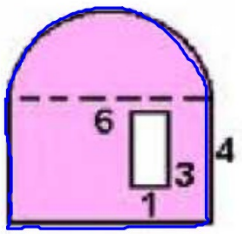
$\text{Perimeter} = (2)(4) + 6 + \frac{1}{2}(2\pi \times 3)$

$= 23.4$

3 s.f.

- Area

Compute the pink area.



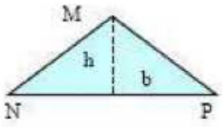
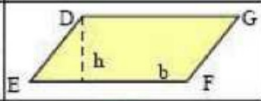
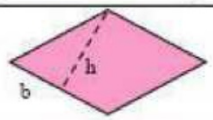
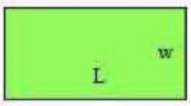
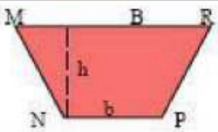
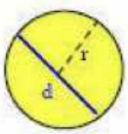
$$\text{area} = \frac{1}{2}\bigcirc + \square - \square$$

$$= \frac{1}{2}\pi(r)^2 + (b)(h) - (b)(h)$$

$$= \frac{1}{2}\pi(3)^2 + (6)(4) - (3)(1)$$

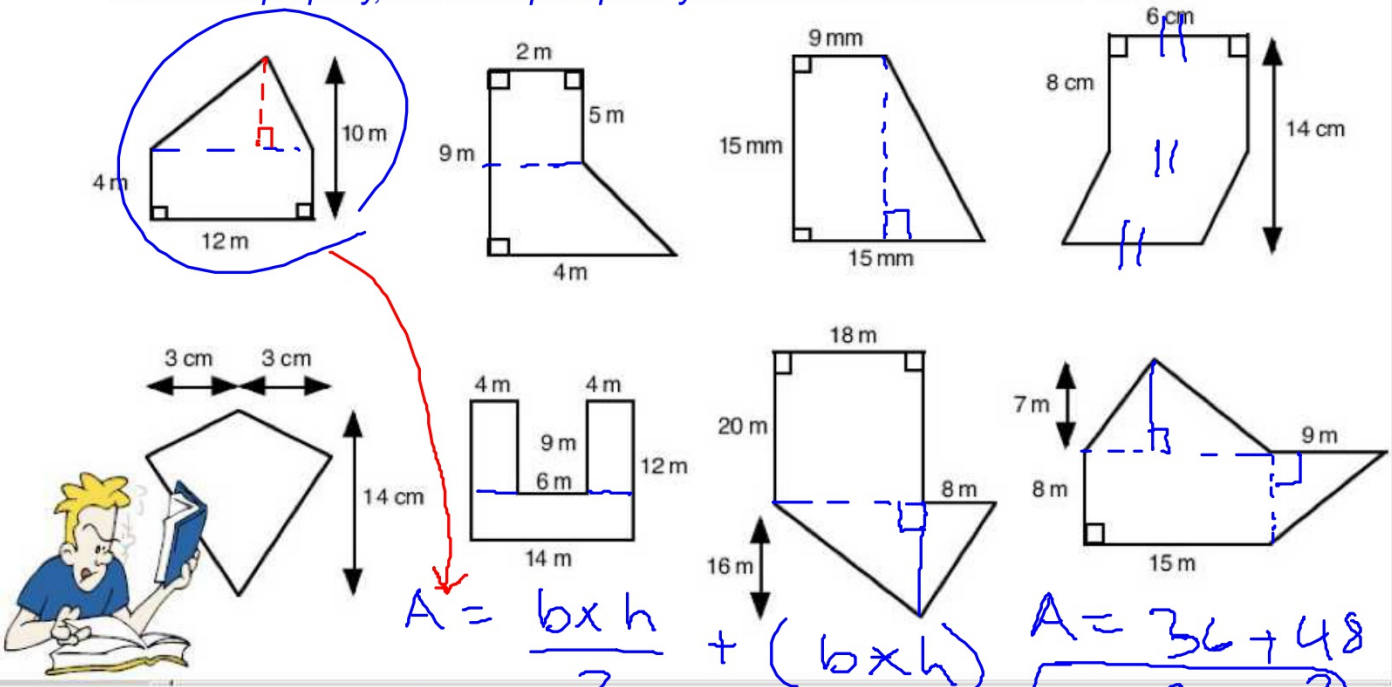
$$= \frac{9}{2}\pi + 24 - 3$$

$$= \frac{9}{2}\pi + 21 \approx 35.14 \text{ square units}$$

NAME	FIGURE	AREA	PERIMETER CIRCUMFERENCE
TRIANGLE		$A = \frac{b \times h}{2}$	$P = MN + NP + PM$
PARALLELOGRAM		$A = b \times h$	$P = DE + EF + FG + GD$
RHOMBUS		$A = b \times h$	$P = b + b + b + b$ $P = 4b$
RECTANGLE		$A = L \times w$	$P = L + w + L + w$ $P = 2L + 2w$
SQUARE		$A = l^2$	$P = l + l + l + l$ $P = 4l$
TRAPEZOID		$A = \frac{(B + b) \times h}{2}$	$P = MN + NP + PR + RM$
CIRCLE		$A = \pi r^2$	$C = 2\pi r = \pi d$

$A = \frac{1}{2}(8 \times 9)$ or $\frac{8 \times 9}{2}$

Substiture properly, do not skip steps or you will loose the METHOD POINT!



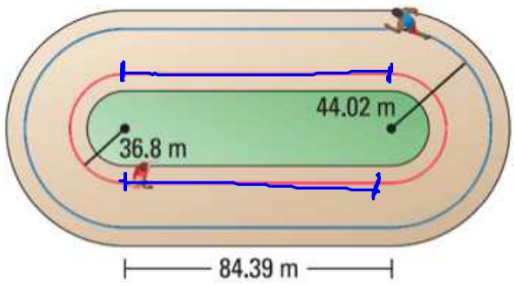
$A = \frac{b \times h}{2} + (b \times h)$

$A = \frac{12 \times 6}{2} + (4 \times 12)$

$A = 36 + 48$

$A = 84\ m^2$

Perimeter and Area of Composite Shapes



- The curves at the ends of the track shown are 180° arcs of circles. The radius of the arc for a runner on the red path shown is 36.8 meters.

  a) About how far does this runner travel to go once around the track?

$P_{red} = [84.39 + 84.39] + [2 \times \pi \times 36.8]$

or $[2 \times 84.39] + [\frac{1}{2}\pi 36.8] + [\frac{1}{2}\pi 36.8]$

$P_{red} = 400\ m$

- b) The radius of the arc on the blue path is 44.02m. How much farther does the runner on the blue path travel?

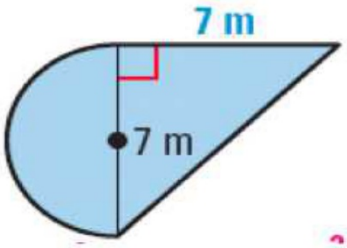
$P_{blue} = [2 \times 84.39] + [2 \times \pi \times 44.02]$

$P_{blue} = 445\ m$

Difference = $P_{blue} - P_{red} = 45\ m$

Perimeter and Area of Composite Shapes

- Find the Area and perimeter of the shaded figure



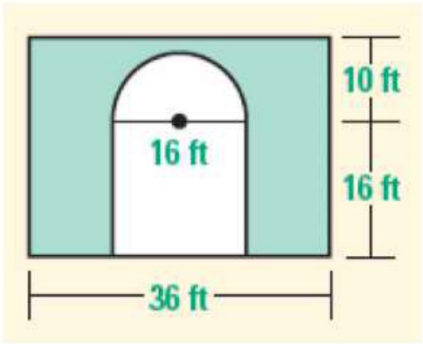
$A_{\text{semicircle}} = \pi(3.5)^2$

$A_{\text{triangle}} = \frac{1}{2} \times 7 \times 7 \text{ or } \frac{7 \times 7}{2}$

$A_{\text{total}} = A_{\text{semicircle}} + A_{\text{triangle}}$

Perimeter and Area of Composite Shapes

- Find the area (in green) and the perimeter of the arch.



AREA OF THE BIG RECTANGLE

$A_1 = w \times l = 36 \times 26$

$A_1 = 936 \text{ ft}^2$

AREA OF THE SEMICERCLE

$A_2 = \frac{1}{2}\text{of Circunference}\left(2\pi r \text{ or } \pi d\right) = \frac{1}{2} \times 2 \times \pi \times 8$

$A_2 = 8\pi \text{ ft}^2$

note: DO NOT ROUND HERE, LEAVE ANSWER WITH PI.

AREA THE SQUARE

$A_3 = s \times s = 16 \times 16$

$A_3 = 256 \text{ ft}^2$

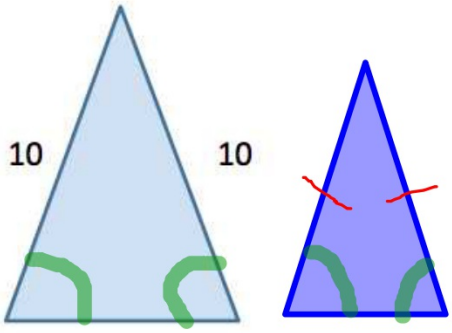
TOTAL AREA= A_1 + A_2 + A_3

TOTAL AREA= 936 + 8∏ + 256

TOTAL AREA= 1217.13274 ft^2 OR 1220 ft^2

Pre-assumed knowledge: Isosceles and Equilateral

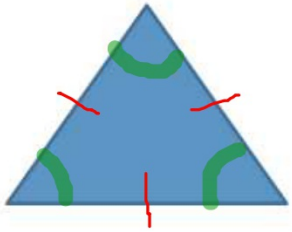
Isosceles Triangles



When you know for sure that a Δ is isosceles, then you also know for sure that the base angles are congruent. ≅

And vice versa...

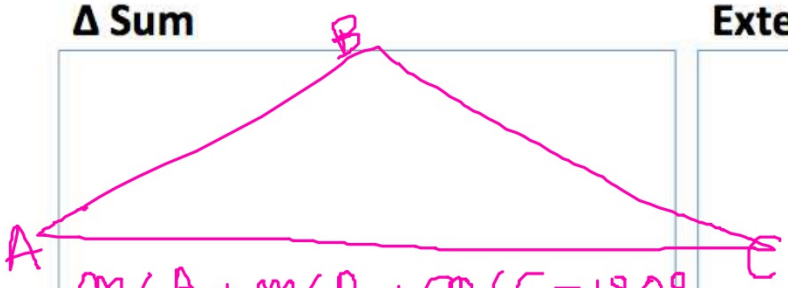
Equilateral Triangles



When you know for sure that a triangle is equilateral, then you also know for sure that the Δ is equiangular And therefore each angle measures 60° And vice versa...

Pre-Assumed knowledge: Triangles

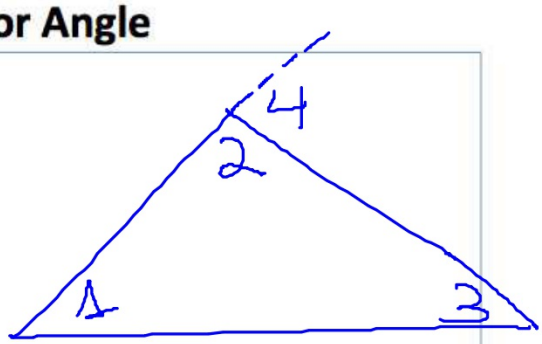
Δ Sum



Therefore, in every Δ, if you know 2 angles, you can always calculate the 3rd angle.

Now you need to be able to see how this Theorem affects *isosceles* Δs. Hint: with isosceles Δs, you only need one angle to get the other two.

Exterior Angle



Go to my-imaths and finish the worksheet callled "Angle Sums"(go to "library", then "shape" , then "Angles"