Practical Pythagoras' Theorem

(a) A model football pitch is 2m long and 0.5m wide. How long is the diagonal?

(b) A 12m long ladder leans against a wall. The foot of the ladder is 2.5m from the foot of the wall. How far up the wall does the ladder reach?

(c) A triangle has sides 7cm, 24 cm and 26 cm. Is the triangle right-angled?

(a) 2.06m

(b) 11.74m

(c) No, as $7^2+24^2 \neq 26^2$

(d) Find the length of the line that joins the coordinate points (13, 6) and (1, 1).

(e) A boat sails 40km east then turns and sails 50km south. How far is the boat from its original position?

(f) A ladder, 15m long, leans against a wall. If it needs to reach 12 m up the wall, how far from the foot of the wall must the ladder be placed?

(d) 13

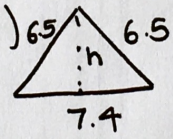
(e) 64.03 km

(f) 9m

(g) A piece of land is in the shape of an isosceles triangle with sides 6.5m, 6.5m and 7.4m. Find the area of the piece of land.

(h) A 10m mast on a boat is supported by a wire called a stay. The stay is 11m long. How far from the base of the mast does the stay reach?

(i) A rectangle is 4cm long. The length of the diagonal is 5cm. What is the area of the rectangle?

(g) 

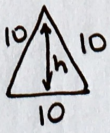
h = 5.344m
A = 19.8m²

(h) 4.58m

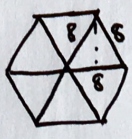
(i) width = 3cm
A = 12cm²

(j) Calculate the area of an equilateral triangle with side length 10mm.

(k) Calculate the area of a regular hexagon with side length 8 cm.

(j) 

h = 8.66mm
A = 43.3mm².

(k) 

$A = 6 \times 4 \times \sqrt{8^2-4^2}$
A = 166.3 cm²