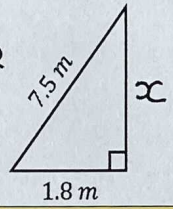
Pythagoras' Theorem Worded Problems

(a)

A ladder which is 7.5 m long, leans against a wall. The foot of the ladder is 1.8 m from the foot of the wall. How far up the wall does the ladder reach to 1 decimal place?



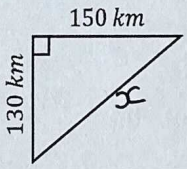
$x^2 = 7.5^2 - 1.8^2$

$x^2 = 53.01$

$x = 7.3m$

(b)

A ship sails 150 km west, then turns and sails 130 km south. How far from its original position is the ship now, to the nearest km?



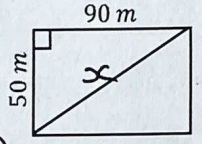
$x^2 = 150^2 + 130^2$

$x^2 = 39400$

$x = 198km.$

(c)

A football pitch is 90 m by 50 m. Find the length of the diagonal of the pitch to 1 decimal place.



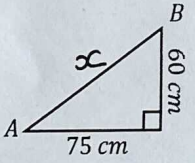
$x^2 = 90^2 + 50^2$

$x^2 = 10600$

$x = 103.0m$

(d)

A snail starts at point A and travels 75 cm east and then 60 cm north to point B. Find the direct distance from A to B.



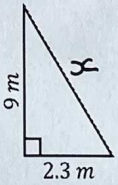
$x^2 = 60^2 + 75^2$

$x^2 = 9225$

$x = 96.0cm$

(e)

A ladder leans against a wall. The foot of the ladder is 2.3 m from the foot of the wall, and the ladder reaches 9 m up the wall. How long is the ladder, to 1 decimal place?



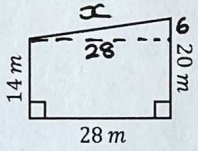
$x^2 = 2.3^2 + 9^2$

$x^2 = 86.29$

$x = 9.3m.$

(f)

A farmer has a field in the shape of a trapezium, as shown. He wants to put a fence all the way around the field. How long will the fence need to be, to 1 decimal place?



$x^2 = 28^2 + 6^2$

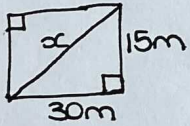
$x^2 = 820$

$x = 28.6m$

$P = 90.6m.$

(g)

A netball pitch is 15 metres wide and 30 metres long. Find the length of the diagonal to 1 decimal place.



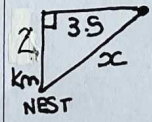
$x^2 = 15^2 + 30^2$

$x^2 = 1125$

$x = 33.5m$

(h)

A bird flies from its nest 2 km due north, then 3.5 km due east. Find the distance of the bird from its nest after its flight.



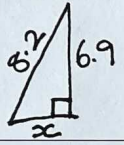
$x^2 = 2^2 + 3.5^2$

$x^2 = 16.25$

$x = 4.0km$

(i)

A ladder of length 8.2 m leans against a wall. The ladder reaches 6.9 m up the wall. How far is the foot of the ladder from the foot of the wall?



$x^2 = 8.2^2 - 6.9^2$

$x^2 = 19.63$

$x = 4.4m.$