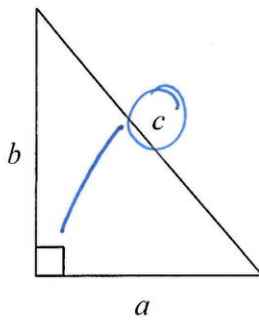


YEAR 8 PYTHAGORAS TEST

NAME: _____

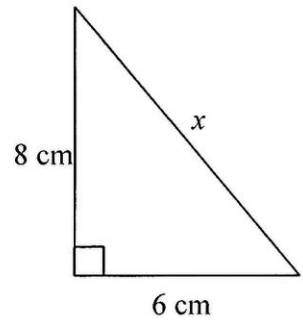
Remember to show your working!

1. Which side is the hypotenuse of the triangle below?

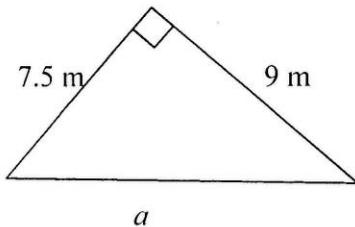


2. Find the length of x

$$\begin{aligned} x^2 &= 8^2 + 6^2 \\ &= 64 + 36 \\ &= 100 \\ x &= \sqrt{100} \\ &= 10 \text{ cm} \end{aligned}$$



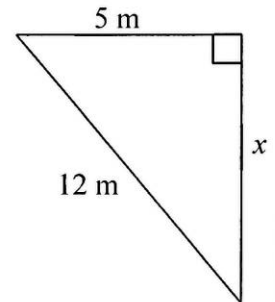
3. Find the length of a (to 1 decimal place)



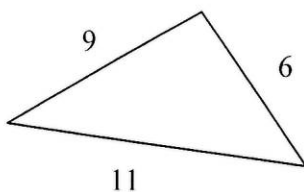
$$\begin{aligned} a^2 &= 7.5^2 + 9^2 \\ &= 137.25 \\ a &= \sqrt{137.25} \\ &= 11.7 \text{ m (1 d.p.)} \end{aligned}$$

4. Find x leaving your answer as a surd.

$$\begin{aligned} 12^2 &= x^2 + 5^2 \\ 144 &= x^2 + 25 \\ -25 &\quad -25 \\ x^2 &= 119 \\ x &= \sqrt{119} \text{ m} \end{aligned}$$



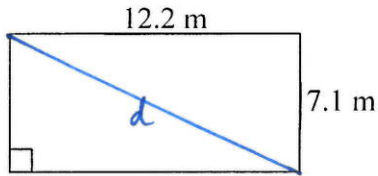
5. Is the triangle ABC below right-angled? Show your reasoning.



LHS	RHS
$= c^2$	$= a^2 + b^2$
$= 11^2$	$= 6^2 + 9^2$
$= 121$	$= 117$

LHS \neq RHS
 $\therefore c^2 \neq a^2 + b^2$
 \therefore the triangle is NOT right-angled

6. Find the length of the diagonal of the rectangle below. (leave your answer as a surd)

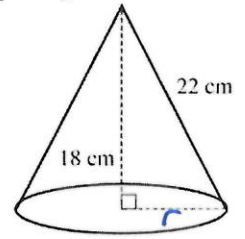


$$d^2 = 7.1^2 + 12.2^2$$

$$= 199.25$$

$$d = \sqrt{199.25} \text{ m}$$

7. What is the radius of the cone drawn below? (leave your answer to 1 decimal place)



$$r^2 + 18^2 = 22^2$$

$$r^2 + 324 = 484$$

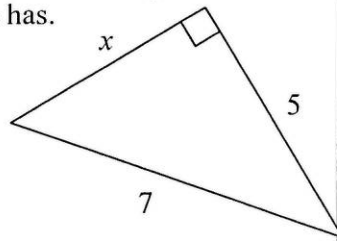
$$\begin{array}{r} -324 \\ -324 \end{array}$$

$$r^2 = 160$$

$$r = \sqrt{160}$$

$$= 12.6 \text{ cm (1 d.p.)}$$

8. Constance has to find the length of x in the diagram below and gives the following working. Is she correct? Mark her work, indicating where she has made a mistake if she has.



$$7^2 = 5^2 + x^2$$

$$x^2 = 7^2 - 5^2$$

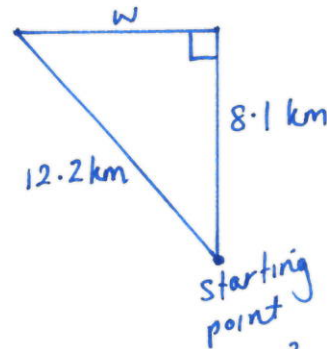
$$= 14 - 10$$

$$= 4$$

$$x = \sqrt{4} = 2$$

$7^2 = 49$
 $5^2 = 25$
 she has squared the numbers incorrectly.

9. A yacht sails 8.1 km north then travels a further distance west. The yacht is now 12.2 km from its starting point. How far did the yacht travel west? Leave your answer correct to 1 decimal place.



$$w^2 + 8.1^2 = 12.2^2$$

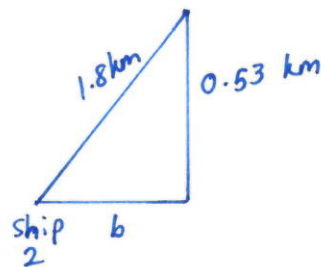
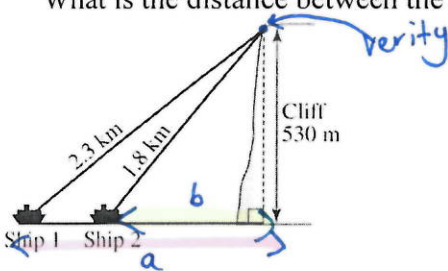
$$w^2 + 65.61 = 148.84$$

$$w^2 = 83.23$$

$$w = \sqrt{83.23}$$

$w = 9.1 \text{ km}$
 (1 d.p.)

11. Verity looks out towards the sea from the top of a cliff and notices 2 ships. What is the distance between the 2 ships as shown in the figure? Be careful of units!

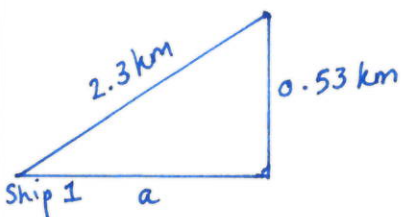


distance between the ship's

$$= a - b$$

$$= \sqrt{4.7282} - \sqrt{2.9591}$$

$$= 0.45 \text{ km (2 d.p.)}$$



$$b^2 + 0.53^2 = 1.8^2$$

$$b^2 + 0.2809 = 3.24$$

$$b^2 = 2.9591$$

$$b = \sqrt{2.9591}$$

$$a^2 + 0.53^2 = 2.3^2$$

$$a^2 + 0.2809 = 5.29$$

$$a^2 = 4.7282$$

$$a = \sqrt{4.7282}$$