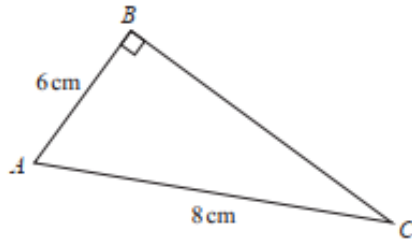**PYTHAGORAS THEOREM**

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

1.

8   *ABC* is a right-angled triangle.
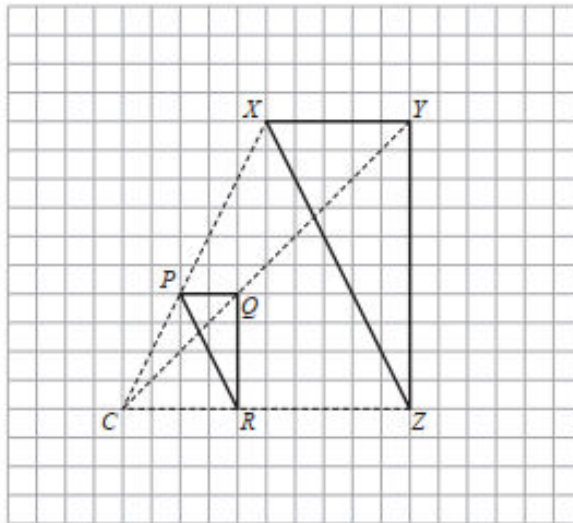

Here is Sarah's method to find the length of *BC*.

$$BC^2 = AB^2 + AC^2$$
$$= 6^2 + 8^2$$
$$= 100$$
$$BC = 10$$

(a) What mistake has Sarah made in her method?

....

....

....
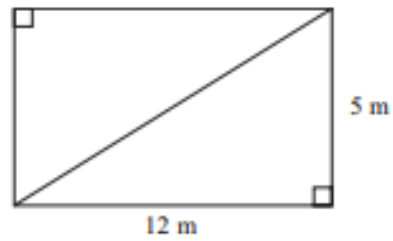
(1)

Roy is going to enlarge triangle *PQR* with centre *C* and scale factor $1\frac{1}{2}$

He draws triangle *XYZ*.

(b) Explain why Roy's diagram is **not** correct.

....

....

....

(1)

(Total for Question 8 is 2 marks)

Pearson Edexcel - Thursday 25 May 2017 - Paper 1 (Non-Calculator) Higher Tier

2.

5 This rectangular frame is made from 5 straight pieces of metal.

The weight of the metal is 1.5 kg per metre.

Work out the total weight of the metal in the frame.

.... kg

Pearson Edexcel - Specimen Papers Set 2 - Paper 1 (Non-Calculator) Higher Tier

3.

4 Triangle *ABC* has perimeter 20 cm.

AB = 7 cm.
BC = 4 cm.

By calculation, deduce whether triangle *ABC* is a right-angled triangle.

(Total for Question 4 is 4 marks)

Pearson Edexcel - Friday 6 November 2015 - Paper 2 (Calculator) Higher Tier

4.

*7 Here is part of a field.
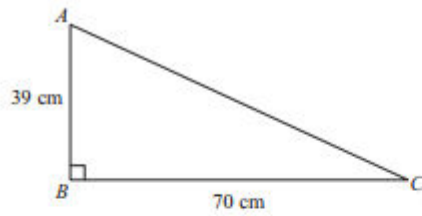

Diagram **NOT**
accurately drawn

18m

11m

10m
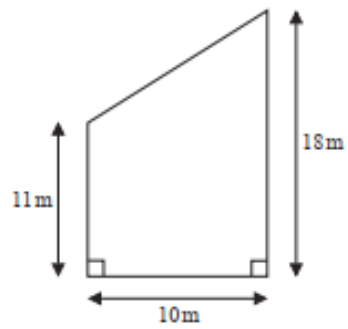
This part of the field is in the shape of a trapezium.
A farmer wants to put a fence all the way around the edge of this part of the field.

The farmer has 50m of fence.

Does he have enough fence?
You must show all your working.

(Total for Question 7 is 5 marks)

Pearson Edexcel - Friday 8 November 2013 - Paper 2 (Calculator) Higher Tier

5.

15 Here is a right-angled triangle.

Diagram **NOT**
accurately drawn

Work out the length of *AC*.
Give your answer correct to 1 decimal place.

.... cm

(Total for Question 15 is 3 marks)

Pearson Edexcel - Friday 14 June 2013 - Paper 2 (Calculator) Higher Tier
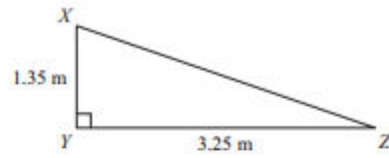
6.

11 *XYZ* is a right-angled triangle.

Diagram **NOT**
accurately drawn

1.35 m

Y

3.25 m

Z

Calculate the length of *XZ*.
Give your answer correct to 3 significant figures.

.... m

(Total for Question 11 is 3 marks)

Pearson Edexcel - Monday 4 March 2013 - Paper 2 (Calculator) Higher Tier
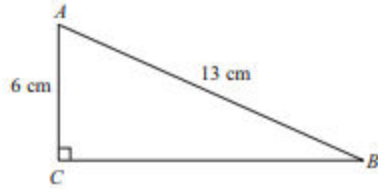
7.

13

Diagram NOT accurately drawn

ABC is a right-angled triangle.
AC = 6 cm
AB = 13 cm

(a) Work out the length of *BC*.
    Give your answer correct to 3 significant figures.

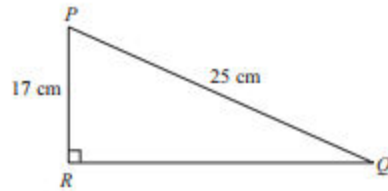..................................... cm

(3)

Diagram NOT accurately drawn

PQR is a right-angled triangle.
PR = 17 cm
PQ = 25 cm

(b) Work out the size of angle *RPQ*.
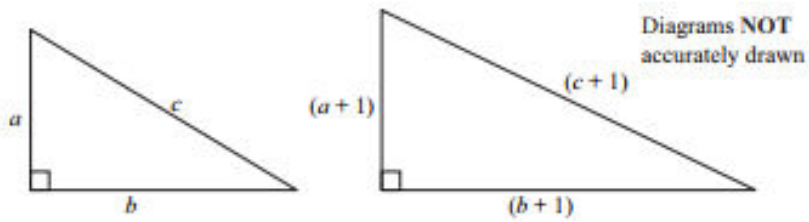   Give your answer correct to 1 decimal place.

.... °

(3)

(Total for Question 13 is 6 marks)

Pearson Edexcel - Friday 2 March 2012 - Paper 3 (Non-Calculator) Higher Tier

8.

24. Umar thinks $(a+1)^2 = a^2 + 1$ for all values of a.

(a) Show that Umar is wrong.

(2)

Here are two right-angled triangles.
All the measurements are in centimetres.

Diagrams NOT accurately drawn

(b) Show that $2a + 2b + 1 = 2c$

(3)

a, b and c cannot all be integers.

(c) Explain why.

(1)

(Total 6 marks)

21.

Diagram **NOT** accurately drawn

6 cm

$2\sqrt{3}$ cm
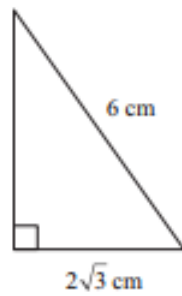
The diagram shows a right-angled triangle.

The length of the base of the triangle is $2\sqrt{3}$ cm.

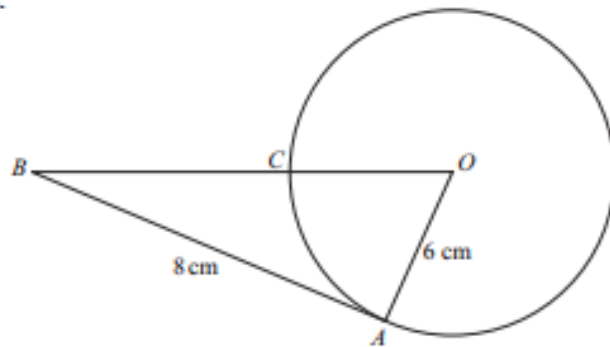The length of the hypotenuse of the triangle is 6 cm.

The area of the triangle is A cm².

Show that $A = k\sqrt{2}$ giving the value of k.

....

(Total 5 marks)

22.

Diagram **NOT**
accurately drawn

In the diagram, O is the centre of the circle.
A and C are points on the circumference of the circle.
BCO is a straight line.
BA is a tangent to the circle.

$AB = 8$ cm.
$OA = 6$ cm.

(a) Explain why angle OAB is a right angle.

....

....

(1)

(b) Work out the length of BC.

.... cm

(3)

(Total 4 marks)

25.
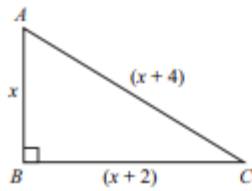

Diagram **NOT**
accurately drawn

ABC is a right-angled triangle.
All the measurements are in centimetres.

$AB = x$
$BC = (x + 2)$
$AC = (x + 4)$

(a) Show that $x^2 - 4x - 12 = 0$

(3)

(b) (i) Solve $x^2 - 4x - 12 = 0$

....

(ii) Hence, write down the length of *AC*.

AC = ... cm

(4)

(Total 7 marks)

Pearson Edexcel - Tuesday 10 November 2009 - Paper 4 (Calculator) Higher Tier
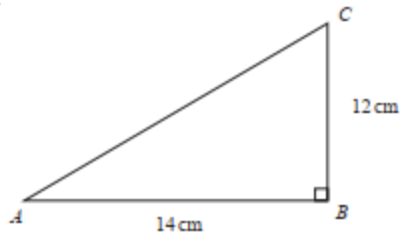
12.

16.

12 cm

Diagram **NOT**
accurately drawn

14 cm

ABC is a right-angled triangle.
AB = 14 cm.
BC = 12 cm.

Calculate the length of *AC*.
Give your answer correct to 3 significant figures.

.... cm

(Total 3 marks)

OCR GSCE – Tuesday 6 November 2018 – Paper 4 (Calculator) Higher Tier

13.

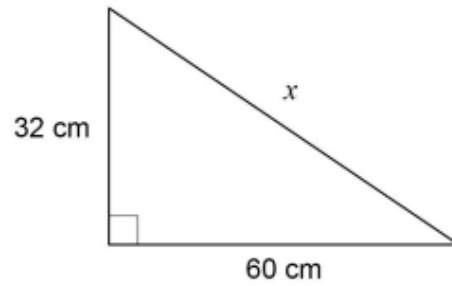**3** Here is Mario's answer to a question.

Question 3	Answer
9 mm, *x* mm, 88°, 43°, 6 mm	$x = \sqrt{9^2 - 6^2}$
	$x = \sqrt{45}$
Work out the value of *x*.	$x = 6.708 \, (3 \, \text{d.p.})$

Explain the error in Mario's method.

....

.... [1]

14.

7 Use Pythagoras' theorem to work out the value of x.

Not drawn accurately

32 cm

x

60 cm

[3 marks]

_____

_____

_____

_____

_____

Answer _____ cm

15.

20   All dimensions are in centimetres.
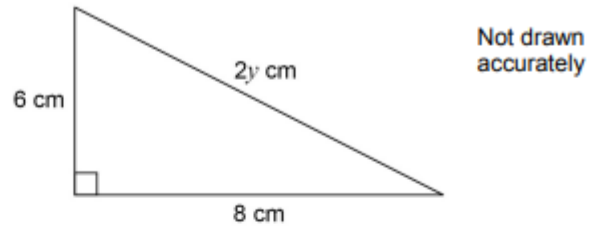

Not drawn
accurately

$10y$

x

$7x$
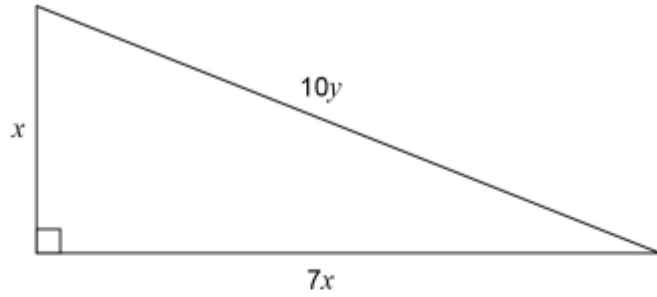
Use Pythagoras' theorem to work out the exact value of $\dfrac{x}{y}$

[3 marks]

Answer _____

16.

15 Sami is trying to work out the exact value of y using Pythagoras' theorem.

Here is her working.

$$(2y)^2 = 6^2 + 8^2$$

$$2y^2 = 36 + 64$$

$$2y^2 = 100$$

$$y^2 = 100 \div 2$$

$$y^2 = 50$$

$$y = \sqrt{50}$$

15 (a) What error has she made in her working?

[1 mark]

_____

_____

15 (b)   Kai works out that $y = 5$

Mel says,

"y cannot be 5 because the hypotenuse should be the longest side and the
other sides are longer than 5 cm"

Is Mel correct?

Tick a box.

Yes ☐   No ☐

Give a reason for your answer.

[1 mark]

_____

_____