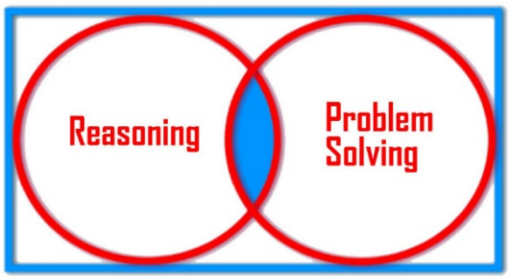
GCSE Foundation (5 – 1)



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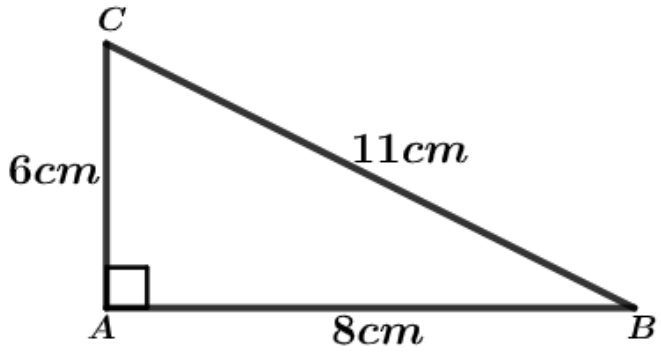
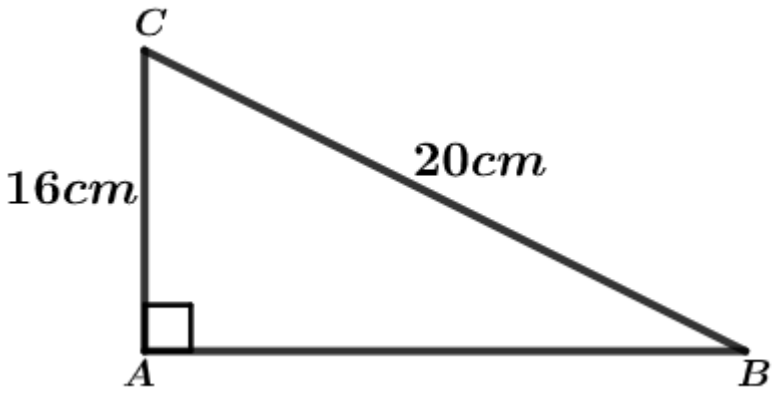
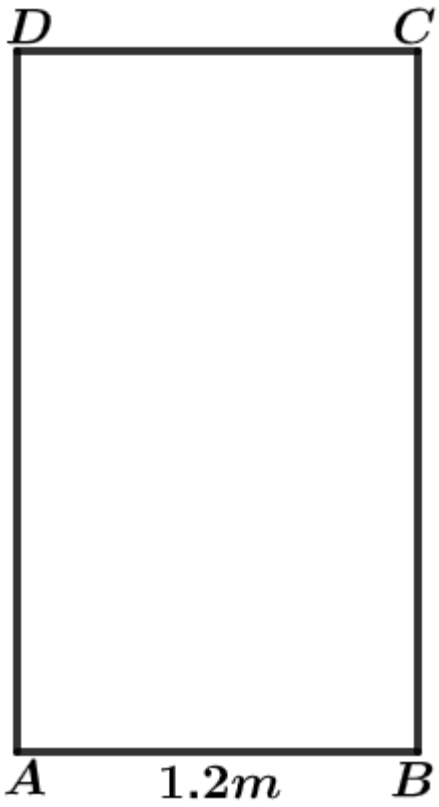
Mathematical Reasoning Questions

(Pythagoras Theorem and Trig) – Set 1

The marks shown are for guidance purposes only
[Total marks: 18 Marks]

1	Triangle ABC is shown below  Is triangle ABC accurately drawn? Justify your answer **[1Mark]**
2	Triangle ABC shown below is right-angled  Emilia calculates the side AB. She says her answer is 22 cm. Without carrying out the actual calculation, how could you tell that, Emelia is wrong? **[1Mark]**

3 ABCD is a rectangle of width 1.2 m



The diagonal $AC = 2.8$ m

The perimeter of rectangle ABCD will be closest to

Choose one answer

a) 7.4 m
b) 6.0 m
c) 8.4 m
d) 8.0 m

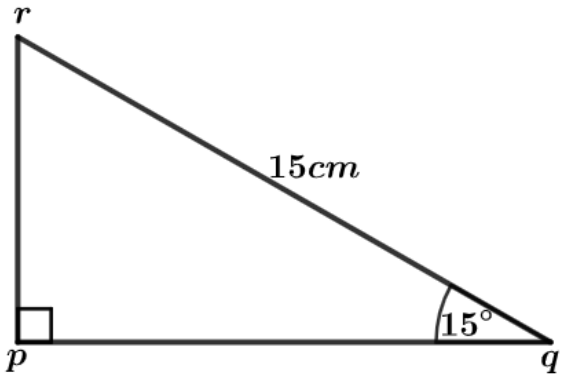
[3Marks]

4

Triangle pqr shown below is right-angled at the vertex p

Angle $pqr = 15°$

$qr = 15$ cm



Which calculation will give the length of the side pr?

Choose one answer

a) $15 \sin 15$

b) $15 \cos 15$

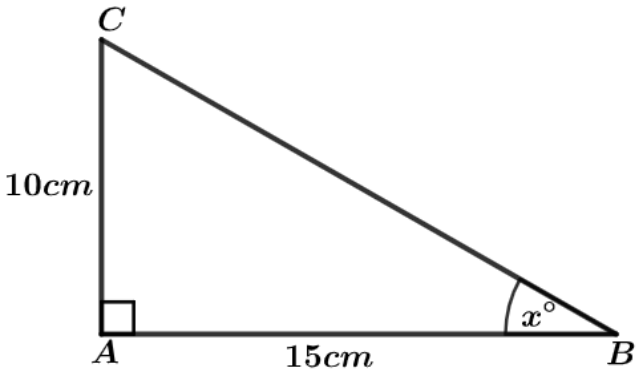
c) $\sin 15 \div 15$

d) $\cos 15 \div 15$

[2Marks]

5

In triangle ABC shown below, the angle x^o is closest to



Choose one answer

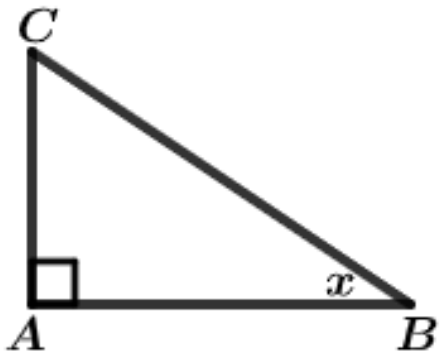
a) 30°

b) 34°

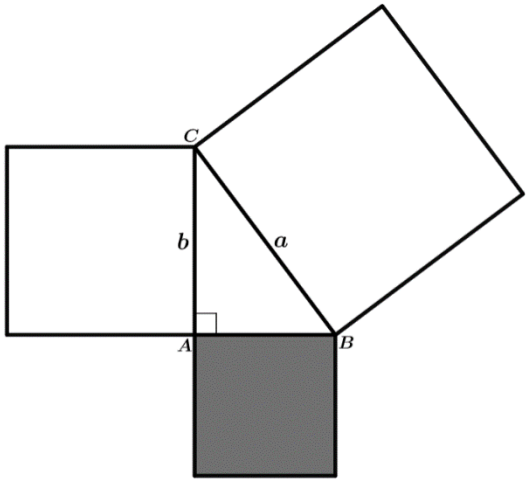
c) 42°

d) 48°

[2Marks]

6	Answer **True** or **False** to the following statements a) A right-angled triangle has sides 4 cm, 5 cm and 6 cm b) If $\sin x = 0.5$, then $x = 30°$ c) If $3^2 = x^2 + 2^2$, then $x = \sqrt{3} - \sqrt{2}$ **[3Marks]**
7	Triangle ABC is shown below. Where angle ABC = x  Which of the following is **false** about triangle ABC? Choose all that may apply a) $AB^2 = AC^2 + BC^2$ b) $\sin x = \frac{AB}{BC}$ c) $\cos x = \frac{AB}{BC}$ d) $AB^2 = AC^2 - BC^2$ **[2Marks]**

8 Three squares are drawn on the sides of triangle ABC as shown below. Where the sides BC and AC are *a* and *b* respectively

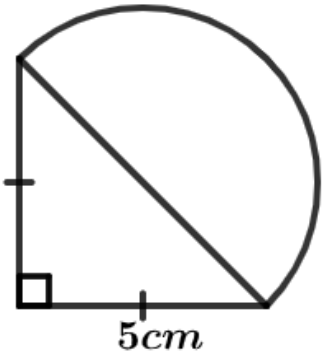


Which expression is equal to the area of the shaded square?

a) $\sqrt{b^2 + a^2}$
b) $b^2 - a^2$
c) $\sqrt{b^2 - a^2}$
d) $b^2 + a^2$

[1Mark]

9 Ana is calculating the exact perimeter of the shape below

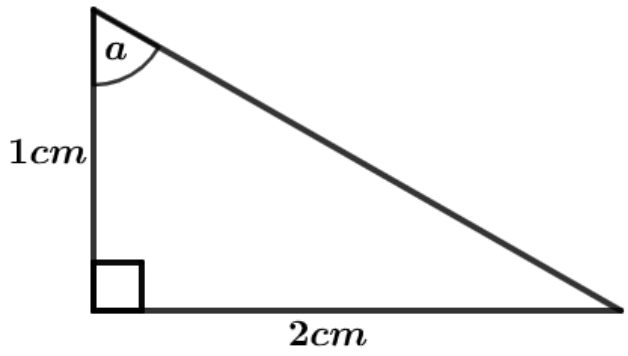


Here is her Answer:

Longer side of the triangle: $\sqrt{5^2 + 5^2} = 10$ cm
Perimeter of the circular part: $10\times \pi = 7\pi$
Perimeter of the shape: $10\pi + 5 + 5 = 10\pi + 10$
Comment on the accuracy of Ana's answer

[1Mark]

10 A right-angled triangle is shown below. Where angle a is indicated



Which of the following is equal to the value of $\cos a$?

a) $\sqrt{5}$

b) $\frac{1}{\sqrt{5}}$

c) $\frac{1}{2}$

d) 2

[2Marks]