Q1.

Show that 12 cos 30° – 2 tan 60° can be written in the form $\sqrt{k}$

where k is an integer.

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(Total 3 marks)

Q2.

Rationalise the denominator and simplify $\frac{10}{3\sqrt{5}}$

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Answer .....

(Total 2 marks)

Q3.

(a) Simplify fully $\sqrt{72}$

Circle your answer.

$36\sqrt{2}$ $3\sqrt{8}$ $6\sqrt{2}$ $2\sqrt{18}$

(1)

(b) Given that $p = \sqrt{3}$ $q = \sqrt{8}$ and $r = \sqrt{6}$

work out the value of $\frac{pq}{r}$

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Answer .....

(2)
(Total 3 marks)

Q4.

Put these in order starting with the smallest.

$2\sqrt{3} \times \sqrt{2}$ $\sqrt{\frac{56}{2}}$ $\frac{10}{\sqrt{5}}$

You **must** show your working.

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Smallest .....

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Largest .....

(Total 3 marks)

Q5.(a) Show clearly that $(x - y)(x + y) \equiv x^2 - y^2$

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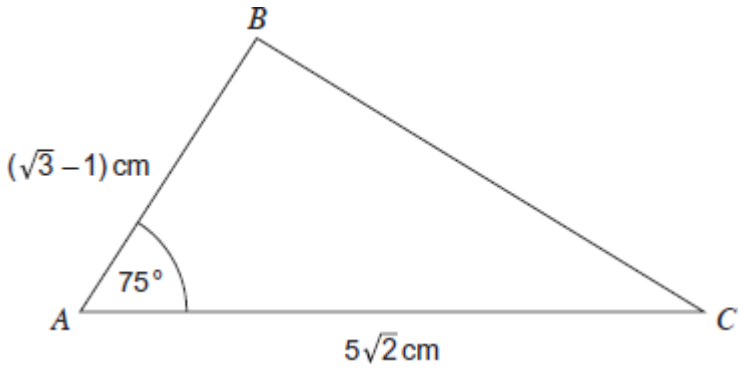
(1)

(b)

Not drawn accurately



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Show that the area of triangle ABC is $2\frac{1}{2}$ cm^2

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(3)
(Total 4 marks)

Q6. $\sqrt{10}\,(3\sqrt{20} + 7\sqrt{5})$ simplifies to $a\sqrt{2}$

Work out the value of a

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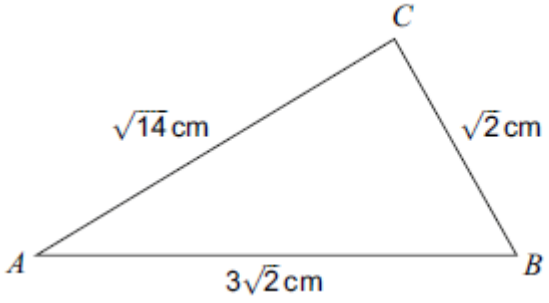
Answer .....

(Total 3 marks)

Q7.

(a) Here is triangle ABC



Not drawn accurately

Show that angle $B = 60°$

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(3)

(b) Hence work out the area of triangle ABC

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Answer ..... cm²

(3)
(Total 6 marks)

Q8.(a) Show that $\sqrt{75}$ can be written as $5\sqrt{3}$

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(1)

(b) Rationalise the denominator and simplify $\frac{6}{\sqrt{3}}$

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Answer .....

(2)

(c) Work out the mean of the three numbers $\sqrt{75}$, $\sqrt{75}$ and $\frac{6}{\sqrt{3}}$

Give your answer in the form $b\sqrt{3}$ where b is an integer.

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Answer .....

(2)
(Total 5 marks)

Q9.(a) Circle the value that is equivalent to $\sqrt{50} + \sqrt{32}$

$9\sqrt{2}$ 41 $\sqrt{82}$ $2\sqrt{41}$

(1)

(b) Circle the value that is equivalent to $4\sqrt{75} \div 2\sqrt{3}$

$2\sqrt{72}$ 10 $2\sqrt{15}$ 20

(1)
(Total 2 marks)

Q10.(a) Simplify fully $\frac{\sqrt{8}}{\sqrt{2}}$

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Answer .....

(2)

(b) $\sqrt{6} \times \sqrt{5} \times \sqrt{4} \times \sqrt{3} \times \sqrt{2} \times \sqrt{1} = k\sqrt{5}$

Work out the value of k.

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Answer .....

(3)
(Total 5 marks)

Q11.(a) Work out the value of $\sqrt{8} \times \sqrt{2}$

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Answer .....

(2)

(b) Rationalise the denominator and simplify $\frac{12}{\sqrt{3}}$

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Answer .....

(2)
(Total 4 marks)

Q12.

Write $\sqrt{500} - 2\sqrt{45}$ in the form $a\sqrt{5}$ where a is an integer.

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Answer.....

(Total 2 marks)

Q13.

(a) Work out the value of $\sqrt{2} \times \sqrt{32}$

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Answer .....

(2)

(b) Rationalise the denominator and simplify $\frac{21}{\sqrt{7}}$

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Answer .....

(2)

(Total 4 marks)

Q14.

Work out $\sqrt{3} \times \sqrt{12} \times 5^{-2}$

Give your answer as a decimal.

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Answer .....

(Total 3 marks)