Credit Revision - Surds and Indices

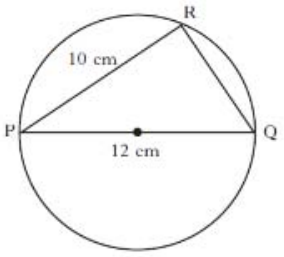
2012 Paper 1

4. In the diagram,

- PQ is the diameter of the circle
- PQ = 12 centimetres
- PR = 10 centimetres.

Calculate the length of QR.

Give your answer as a surd in its simplest form.



4RE

10. (*a*) Evaluate $(2^3)^2$.

1KU

(*b*) Hence find n, when $(2^3)^n = \frac{1}{64}$.

1RE

2011 Paper 1

9. (*a*) Simplify $2a \times a^{-4}$.

1KU

(*b*) Solve for x, $\sqrt{x} + \sqrt{18} = 4\sqrt{2}$.

3KU

2010 Paper 1

8. (*a*) Simplify $\sqrt{2} \times \sqrt{18}$.

(*b*) Simplify $\sqrt{2} + \sqrt{18}$.

(*c*) Hence show that $\frac{\sqrt{2} \times \sqrt{18}}{\sqrt{2} + \sqrt{18}} = \frac{3\sqrt{2}}{4}$.

1,1,2 KU

2009 Paper 1

4. (*c*) Expand

$$x^{\frac{1}{2}}\left(3x + x^{-2}\right).$$

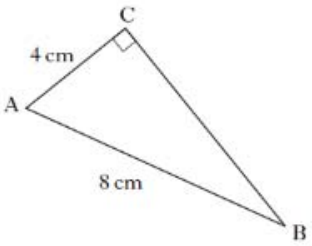
2KU

5. In triangle ABC:

- angle ACB = 90°
- AB = 8 centimetres
- AC = 4 centimetres.

Calculate the length of BC.

Give your answer **as a surd in its simplest form**.



3KU

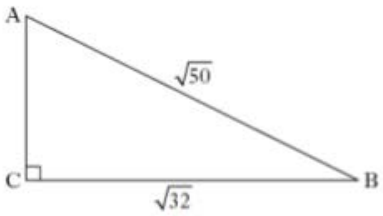
2008 Paper 1

9. Simplify

$$m^3 \times \sqrt{m}.$$

2KU

11. A right angled triangle has dimensions as shown



3KU

Calculate the length of AC, leaving your answer as a surd **in its simplest form**.

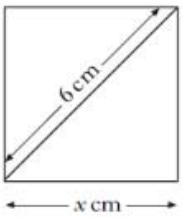
2007 Paper 1

7. Remove brackets and simplify

$$a^{\frac{1}{2}}(a^{\frac{1}{2}} - 2).$$

2KU

9. A square of side x centimetres has a diagonal 6 centimetres long.



Calculate the value of x, giving your answer as a surd in its simplest form.

3RE

2006 Paper 2

4. (*b*) Expand

$$m^{\frac{1}{2}}(2 + m^2).$$

2KU

(*c*) Simplify, leaving your answer as a surd

$$2\sqrt{20} - 3\sqrt{5}.$$

2KU

2005 Paper 1

$$f(x) = 4\sqrt{x} + \sqrt{2}$$

(*a*) Find the value of $f(72)$ as a surd in its simplest form. 3KU

(*b*) Find the value of t, given that $f(t) = 3\sqrt{2}$. 3RE

2004 Paper 1

11. (*a*) Simplify $2\sqrt{75}$ 2KU

(*b*) Evaluate $2^0 + 3^{-1}$. 2KU

2003 Paper 1

12. (*a*) Evaluate

$$8^{\frac{2}{3}}.$$

2KU

(*b*) Simplify

$$\frac{\sqrt{24}}{\sqrt{2}}.$$

2KU

2002 Paper 1

10. Simplify

$$\sqrt{27} + 2\sqrt{3}.$$

2KU

11. Express in its simplest form

$$y^8 \times (y^3)^{-2}.$$

2KU