

Four Maths Questions at Different Levels – Question Set 9

Easy higher tier GCSE

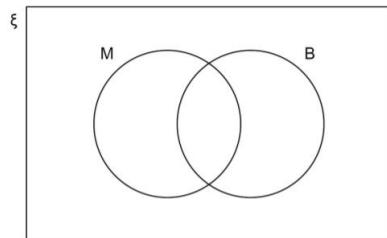
A school has 86 teachers.

42 are male and 44 are female.

$\frac{1}{3}$ of the male teachers have blue eyes.

$\frac{1}{4}$ of the female teachers have blue eyes.

ξ = teachers in the school
 M = male teachers
 B = teachers who have blue eyes



Complete the Venn diagram.

One teacher who has blue eyes is chosen at random.

Work out the probability that the teacher is male.

AQA GCSE, June 2017, Paper 2

Harder higher tier GCSE

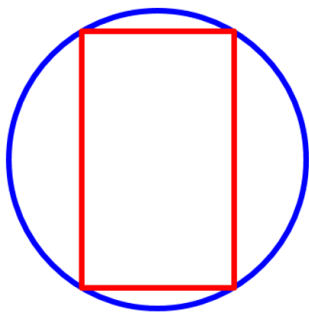
Simplify $\frac{2 \sin 45^\circ - \tan 45^\circ}{4 \tan 60^\circ}$

Give your answer in the form $\frac{\sqrt{a} - \sqrt{b}}{c}$

where a , b and c are integers.

AQA GCSE, June 2017, Paper 1

Something interesting



A circle of radius 6cm is inscribed by a rectangle of perimeter 28cm.

Find the area of the rectangle.

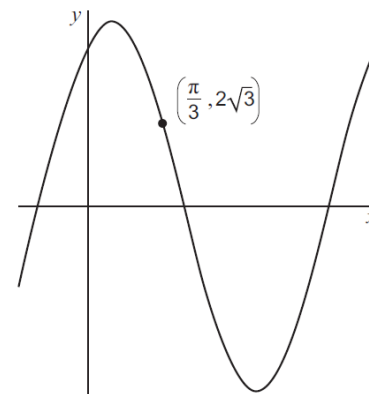
(FMSP / AMSP)

A Level

A curve has equation $y = a \sin x + b \cos x$ where a and b are constants.

The maximum value of y is 4 and the curve passes through the point $(\frac{\pi}{3}, 2\sqrt{3})$ as shown in the diagram.

Find the exact values of a and b .



AQA, Paper 2, June 2019

Four Maths Questions at Different Levels – Answers Set 9

Easy higher tier GCSE

A school has 86 teachers.

42 are male and 44 are female.

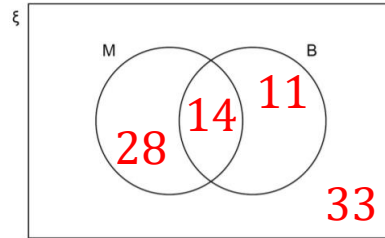
$\frac{1}{3}$ of the male teachers have blue eyes.

$\frac{1}{4}$ of the female teachers have blue eyes.

ξ = teachers in the school

M = male teachers

B = teachers who have blue eyes



Complete the Venn diagram.

One teacher who has blue eyes is chosen at random. $\frac{14}{25}$

Work out the probability that the teacher is male. $\frac{25}{25}$

AQA GCSE, June 2017, Paper 2

Harder higher tier GCSE

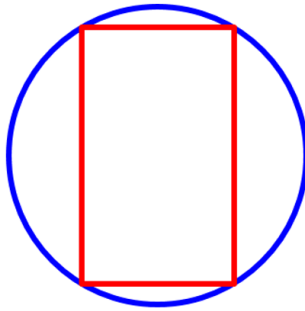
Simplify $\frac{2 \sin 45^\circ - \tan 45^\circ}{4 \tan 60^\circ}$

Give your answer in the form $\frac{\sqrt{a} - \sqrt{b}}{c}$

where a , b and c are integers. $\frac{\sqrt{6} - \sqrt{3}}{12}$

AQA GCSE, June 2017, Paper 1

Something interesting



$$\begin{aligned} a + b &= 14 \\ a^2 + b^2 &= 144 \end{aligned}$$

$$\begin{aligned} (a + b)^2 &= a^2 + 2ab + b^2 \\ \Rightarrow 196 &= 2ab + 144 \\ \Rightarrow 52 &= 2ab \\ \Rightarrow 26 &= ab \end{aligned}$$

A circle of radius 6cm is inscribed by a rectangle of perimeter 28cm.

Find the area of the rectangle.

(FMSP / AMSP)

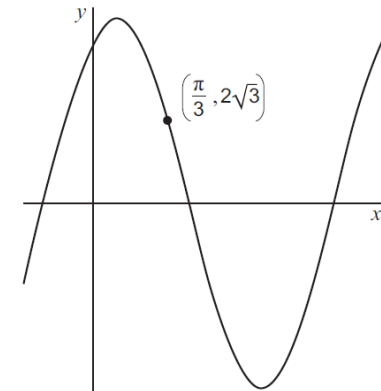
A Level

A curve has equation $y = a \sin x + b \cos x$ where a and b are constants.

The maximum value of y is 4 and the curve passes through the point $(\frac{\pi}{3}, 2\sqrt{3})$ as shown in the diagram.

Find the exact values of a and b .

$$a = 2, b = 2\sqrt{3}$$



AQA, Paper 2, June 2019