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IToPS

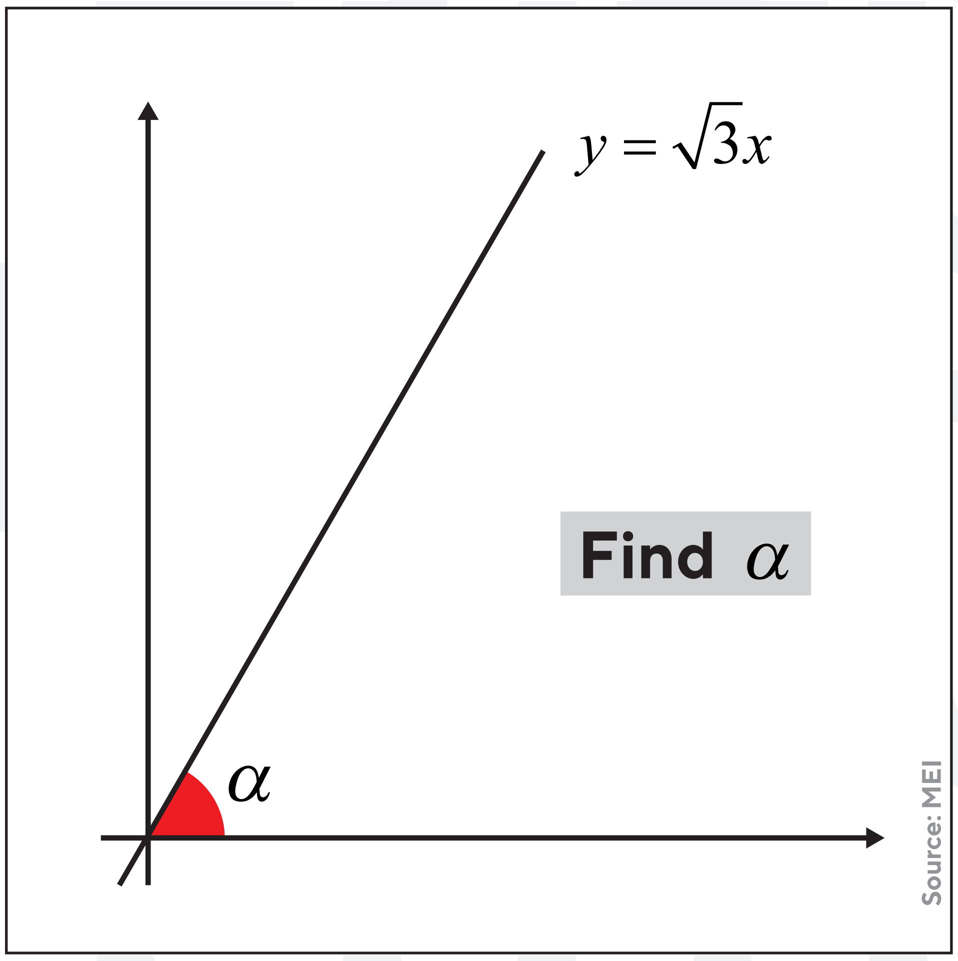
Aimed at
YEAR 12
BUT ALL WELCOME

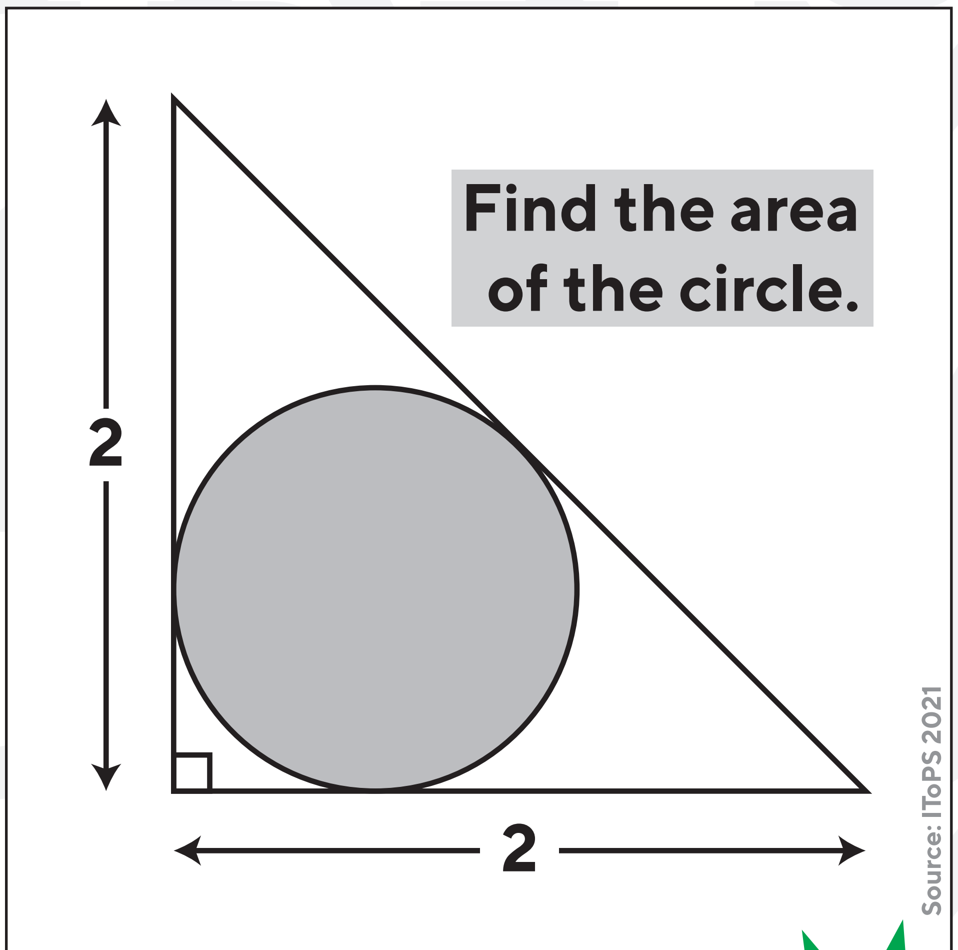
Introduction To Problem Solving

BOOK HERE

The Further Maths Support Programme Wales run a course to supplement your Maths career post A-level. If you are thinking of studying Maths or a related course at university or just for the love of Maths join this course with lots of problems to solve that will improve all your mathematical skills!

If you are thinking of taking any university entrance exams, this is the perfect introduction to them. The course will be a mix of online sessions and some face to face at different locations across Wales. Starting in the Autumn term - you can join any time!





More details & to book: furthermaths.wales/ITOPS
or email: rhgmc-mspw@swansea.ac.uk

FREE

Which is larger?

$\sqrt{2}$ or $\sqrt[3]{3}$

Source: a Cambridge interview question

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MAT

Aimed at
YEAR 12 SUMMER
YEAR 13 AUTUMN
BUT ALL WELCOME

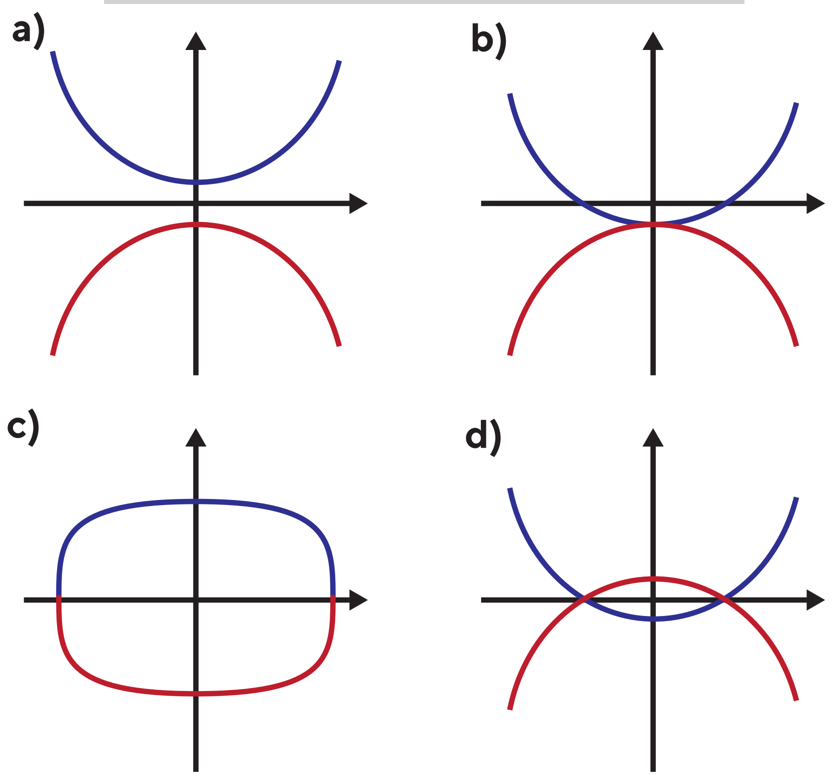
Preparing for the Mathematics Admissions Test

BOOK HERE

Developing your problem-solving skills and strategies further, this 5 session course helps equip you for Oxford's Mathematics Admission Test, as well building your problem-solving armoury even further.

The course will be a series of online sessions. Running during the summer and into the autumn term.

Which of the following sketches is a graph of $x^4 - y^2 = 2y + 1$?



Source: www.maths.ox.ac.uk

The function f, defined for whole positive numbers, satisfies

$$f(1) = 1$$

and also the rules

$$f(2n) = 2f(n)$$
$$f(2n+1) = 4f(n)$$

for all values of n.

How many numbers satisfy $f(n) = 16$?

a) 3, b) 4, c) 5, d) 6

Source: www.maths.ox.ac.uk

FREE

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What is the total of the digit sums of the integers from 0 to 999 inclusive?

Source: www.maths.ox.ac.uk

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STEP

Aimed at
YEAR 13
BUT ALL WELCOME

Equip yourself for the **STEP** papers

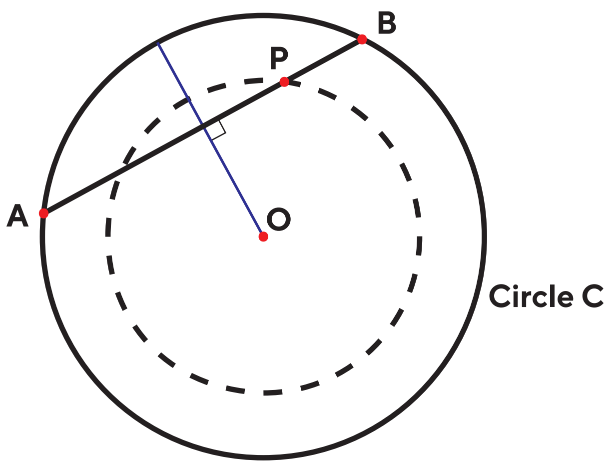
BOOK HERE

Preparing for the most demanding of examinations in the UK for students of pre-university years. This course will introduce you to the Sixth Term Examination Papers and set you on the path to understanding your way around some of these great challenges.

The course will be a mix of online sessions and some face to face at different locations across Wales. Starting in the Autumn term - you can join any time!

The diagram shows a circle C with centre O, and a rod AB the ends of the which can slide round the circle C. The radius of the circle is R and the length of the rod is $2a$.

As the rod slides round C the point P, which is a fixed distance b from the centre of the rod, traces out a circle with centre O of radius r.



Show that the area between the two circles is $\pi(a^2 - b^2)$

Source: https://maths.org/step/

a) Given that

$$P(x) = Q(x)R'(x) - Q'(x)R(x)$$

write down an expression for

$$\int \frac{P(x)}{(Q(x))^2}\,dx$$

b) By choosing the function $R(x)$ to be of the form

$$a + bx + cx^2$$

find

$$\int \frac{5x^2 - 4x - 3}{(1+2x+3x^2)^2}\,dx$$

Source: https://maths.org/step/

FREE

More details & to book: furthermaths.wales/STEP
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The infinite series S is given by $S = 1 + (1+d)r + (1+2d)r^2 + \ldots + (1+nd)r^n + \ldots$ for $|r| < 1$.
By considering $S - rS$ or otherwise prove that $S = \frac{1}{1-r} + \frac{rd}{(1-r)^2}$

Source: https://maths.org/step/

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DP

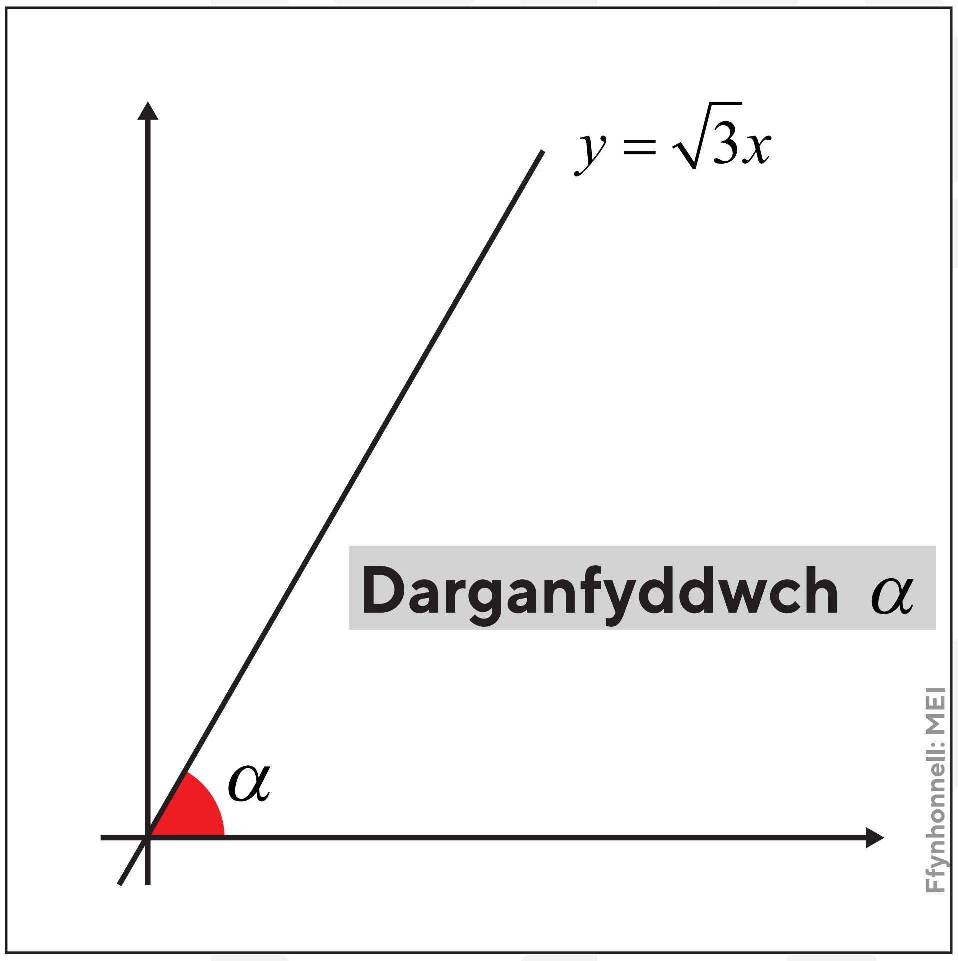
WEDI ANELU AT
FLWYDDYN 12
OND CROESO I BAWB

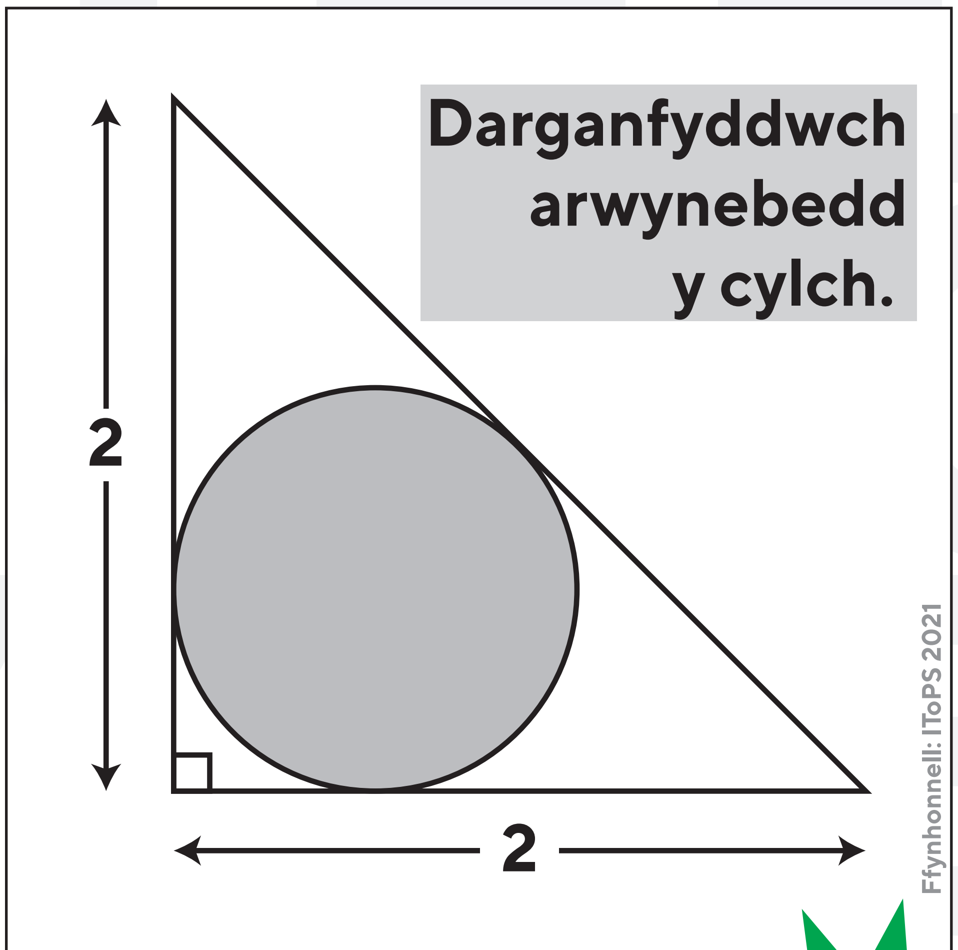
Cyflwyniad I Ddatrys Problemau

ARCHEBWCH YMA

Mae Rhaglen Gymorth Mathemateg Bellach Cymru yn cynnal cwrs i ychwanegu at eich gyrfa Mathemateg wedi'r safon uwch. Os ydych chi'n ystyried astudio Mathemateg neu gwrs cysylltiedig yn y brifysgol neu fod gennych gariad at Fathemateg ymunwch â'r cwrs hwn gyda llawer o broblemau i'w datrys a fydd yn gwella eich holl sgiliau mathemategol!

Os ydych chi'n ystyried sefyll unrhyw arholiadau mynediad prifysgol, dyma'r cyflwyniad perffaith iddyn nhw. Cymysgedd o sesiynau ar-lein fydd y cwrs a rhai wyneb yn wyneb mewn gwahanol leoliadau ledled Cymru. Dechrau yn nhymor yr Hydref - cewch ymuno unrhyw bryd!





AM DDIM

Mwy o fanylion & i archebu: : furthermaths.wales/cy/dp
neu email: rhgmc-mspw@swansea.ac.uk

Pa un sydd fwyaf?

$\sqrt{2}$ **neu** $\sqrt[3]{3}$

Ffynhonnell: Cwestiwn cyfweliad Caergrawnt

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MAT

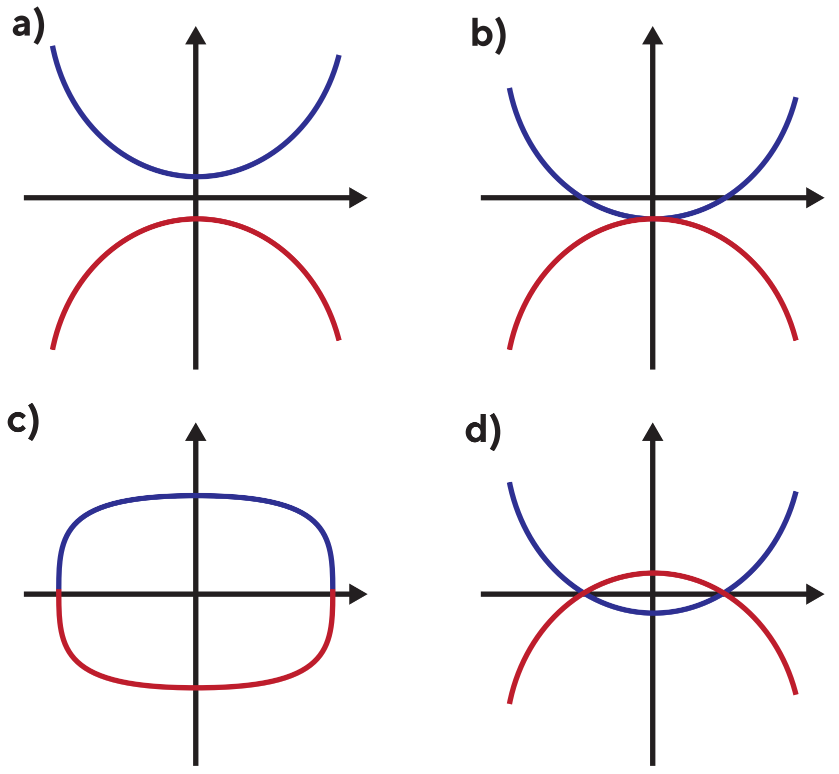
WEDI ANELU AT
FLWYDDYN 12 HAF
BLWYDDYN 12 HYDREF
OND CROESO I BAWB

ARCHEBWCH YMA

Paratoi ar gyfer y Prawf Derbyniad Mathemateg (MAT)

Datblygu eich sgiliau a'ch strategaethau datrys problemau ymhellach, mae'r cwrs 5 sesiwn hwn yn helpu i'ch arfogi ar gyfer Prawf Derbyniad Mathemateg Rhydychen, yn ogystal ag adeiladu eich arfwisg datrys problemau hyd yn oed ymhellach.
Cyfres o sesiynau ar-lein fydd y cwrs. Yn rhedeg yn ystod yr haf ac i mewn i dymor yr hydref.

Pa un o'r brasluniau canlynol sy'n graff o $x^4 - y^2 = 2y + 1$?



Ffynhonnell: www.maths.ox.ac.uk

Mae'r ffwythiant f,
a ddiffinir ar gyfer cyfanrifau positif, yn bodloni
$$f(1) = 1$$
a hefyd y rheolau
$$f(2n) = 2f(n)$$
$$f(2n+1) = 4f(n)$$
ar gyfer holl werthoedd n.

Faint o rifau sy'n bodloni $f(n) = 16$?

a) 3, b) 4, c) 5, d) 6

Ffynhonnell: www.maths.ox.ac.uk

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Beth yw cyfanswm y symiau digid o'r cyfanrifau o 0 i 999 yn gynhwysiedig?

Ffynhonnell: www.maths.ox.ac.uk

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STEP

WEDI ANELU AT
FLWYDDYN 13
OND CROESO I BAWB

ARCHEBWCH YMA

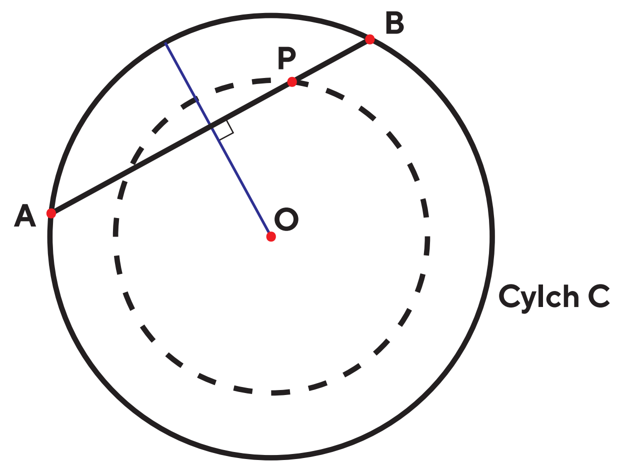
Arfogi eich hun ar gyfer y papurau STEP

Paratoi ar gyfer y mwyaf heriol o'r arholiadau yn y DU ar gyfer myfyrwyr blynyddoedd cyn-brifysgol. Bydd y cwrs hwn yn eich cyflwyno i Bapurau Arholiad y Chweched Tymor ac yn eich gosod ar y llwybr i ddeall eich ffordd o amgylch rhai o'r heriau mawr hyn.

Bydd y cwrs yn gymysgedd o sesiynau ar-lein a rhai wyneb yn wyneb mewn gwahanol leoliadau ledled Cymru. Yn dechrau yn nhymor yr Hydref - gallwch ymuno unrhyw bryd!

Mae'r diagram yn dangos cylch C canol O, a rhoden AB y mae ei ddau ben yn gallu llithro o amgylch y cylch C. Radiws y cylch yw R a hyd y rhoden yw $2a$.

Wrth i'r roden lithro o amgylch C mae'r pwynt P, sy'n bellter sefydlog b o ganol y rhoden, yn amlinellu cylch canol O a radiws r.



Dangoswch fod yr arwynebedd rhwng y ddau gylch yn $\pi(a^2-b^2)$

Ffynhonnell: https://maths.org/step/

a) O wybod bod

$$P(x)=Q(x)R'(x)-Q'(x)R(x)$$

ysgrifennwch fynegiad ar gyfer

$$\int \frac{P(x)}{(Q(x))^2}\,dx$$

b) Drwy ddewis y ffwythiant $R(x)$ i fod o'r ffurf

$$a+bx+cx^2$$

carganfyddwch

$$\int \frac{5x^2-4x-3}{(1+2x+3x^2)^2}\,dx$$

Ffynhonnell: https://maths.org/step/

AM DDIM

Mwy o fanylion & i archebu: : furthermaths.wales/STEP1
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Rhoddir y gyfres anfeidraidd S gan $S=1+(1+d)r+(1+2d)r^2+\ldots+(1+nd)r^n+\ldots$ ar gyfer $|r|<1$ .Drwy ystyried $S-rS$ neu fel arall profwch fod $S=\frac{1}{1-r}+\frac{rd}{(1-r)^2}$

Ffynhonnell: https://maths.org/step/

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