
Venus

Question - Trigonometric identities

Given that $\cos(A) = \frac{3}{5}$, use a trigonometric identity of your choice to calculate the value of $\sin(A)$.

Question - Double-angle formulae

(This is a pretty dry topic so only 1 question here)

Use the double-angle formula for $\cos(A - B)$ to simplify $\cos(\frac{3\pi}{2} - \theta)$.

Question - Hyperbolic identities

Calculate $\cosh^2(x) - \sinh^2(x)$ and $\cosh^2(x) + \sinh^2(x)$ to see what they equal.

(Use the e^x formulae)

How do the identities you discover compare to the equivalent identities with $\sin^2(x)$ and $\cos^2(x)$?

Question - Graph sketching

Sketch (by hand) the graph of $y(x) = x^2 + 1$ for x between -4 and 4 . Use your sketch to describe when the gradient of y is negative, when it is 0 and when it is positive.

Question

(You may wish to use an online sketch program like [desmos.com/calculator](https://www.desmos.com/calculator)) Use the internet to sketch $y(x) = x^3 - 3x$ for x between -4 and 4 . Use your sketch to describe when the gradient of y is negative, when it is 0 and when it is positive.

Follow-up

Use a Table of Standard Derivatives to work out $\frac{dy}{dx}$ and by factorising the answer, work out exactly where the function's turning points are.