

2nd June

Corbettmaths

Solve

$$8^x = 16^{5-x}$$

In Year 10 there are 35 girls.
Two of the girls are going to be chosen at random to go on a trip.

Work out the number of different pairs that can be chosen.

The equation of a curve is

$$y = \frac{4}{3}x^3 + \frac{7}{2}x^2 + ax + 5 \text{ where } a \text{ is a constant}$$

The curve has a maximum point at

$$\left(-2, \frac{37}{3}\right)$$

The curve has a minimum point at

$$\left(\frac{1}{4}, \frac{455}{96}\right)$$

Work out the value of a

Prove that

$$\frac{\sin^2\theta - 9\sin\theta + 8}{\cos^2\theta} \equiv \frac{8 - \sin\theta}{1 + \sin\theta}$$