

7th September



Corbettmaths

Make c the subject of

$$\frac{3}{abc} = 6 + \frac{5}{a} - \frac{7}{ab}$$

$$\begin{aligned} 3 &= 6abc + 5bc - 7c \\ 3 &= c(6ab + 5b - 7) \\ c &= \frac{3}{6ab + 5b - 7} \end{aligned}$$

Solve

$$x^{-\frac{2}{3}} = 20\frac{1}{4}$$

$$\begin{aligned} (x^{-\frac{2}{3}})^{-\frac{3}{2}} &= \left(20\frac{1}{4}\right)^{-\frac{3}{2}} \\ x &= \frac{8}{729} \end{aligned}$$

$$9a(8 - 3x) + 8(ax - 1) \equiv b - 152x$$

Work out a and b

$$\begin{aligned} 72a - 27ax + 8ax - 8 &\equiv -152x + b \\ -19ax + (72a - 8) &\equiv -152x + b \\ -19a &= -152 \Rightarrow a = 8 \\ 72a - 8 &= b \Rightarrow b = 568 \end{aligned}$$

Prove that

$$\sin\theta - \sin\theta\cos^2\theta \equiv \sin^3\theta$$

$$\begin{aligned} \sin^3\theta &= \sin\theta(\sin^2\theta) \\ &= \sin\theta(1 - \cos^2\theta) \\ &= \sin\theta - \sin\theta\cos^2\theta \end{aligned}$$