6th August **Higher Plus 5-a-day**

Corbettmaths

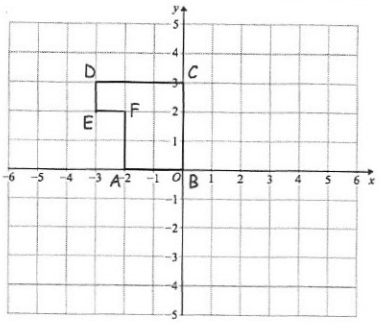
Work out

$16^{-\frac{3}{4}}$

$\sqrt[4]{16} = 2$

$2^3 = 8$

$\frac{1}{8}$



Describe a single transformation so that only vertex F is invariant.

Enlargement

Scale factor -2

Centre $(-2, 2)$

Show that the equation $x^3 + 4x = 8$ has a solution between $x = 1$ and $x = 2$

$x^3 + 4x - 8 = 0$

$f(1) = -3$

$f(2) = 8$

As $f(x)$ is continuous and there is a change of sign, there is a root between $x = 1$ & $x = 2$.

Show the equation $x^3 + 4x = 8$ can be rearranged to give

$x = \sqrt[3]{8 - 4x}$

$x^3 = 8 - 4x$

$x = \sqrt[3]{8 - 4x}$

Starting with $x_0 = 1$, use the iteration formula $x_{n+1} = \sqrt[3]{8 - 4x_n}$ three times to find an estimate for the solution of $x^3 + 4x = 8$

$x_0 = 1$

$x_1 = 1.587401052$

$x_2 = 1.181760227$

$x_3 = 1.486727864$