

6th August

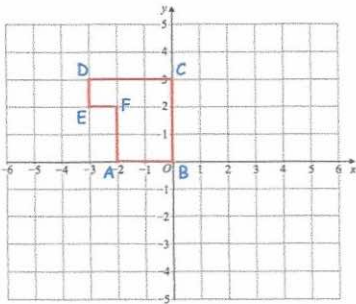


Corbettmaths

Evaluate

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

$$\frac{1}{8}$$



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

Rotation of  $180^\circ$  about  
 $(-2, 2)$

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

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

$$1^3 + 4 - 8 = -3$$

$$2^3 + 8 - 8 = 8$$

As there is a change in sign, there is a solution between  $x=1$  and  $x=2$

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  $x^3 + 4x = 8$

$$\begin{aligned} x_0 &= 1 \\ x_1 &= 1.587401052 \\ x_2 &= 1.181760227 \\ x_3 &= 1.484727864 \end{aligned}$$