Name: _____ 5-a-day Higher Plus

20th August

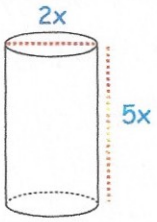
Corbettmaths

The cylinder has a surface area of 972π cm².
Find x.

$12\pi x^2 = 972\pi$

$x^2 = 81$

$x = 9$cm



$\pi \times x^2 = \pi x^2$

$\pi \times x^2 = \pi x^2$

$2\pi \times 5x = 10\pi x^2$

$= 12\pi x^2$

Simplify fully

$$\frac{x^3 - x}{x + 2} \div \frac{x^2 - x}{x^2 - 5x - 14}$$

$\frac{x(x^2-1)}{x+2} \times \frac{(x+2)(x-7)}{x(x-1)}$

$\frac{x(x+1)(x-1)(x+2)(x-7)}{x(x+2)(x-1)} = (x-7)(x+1)$

$$\frac{81^y}{3^{y-5}} = 3\sqrt{3}$$

Find y

$81^y = (3^4)^y = 3^{4y}$

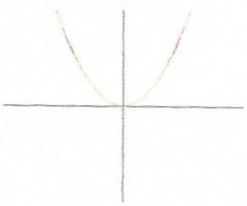
$3\sqrt{3} = 3^{\frac{3}{2}}$

$4y - (y-5) = \frac{3}{2}$

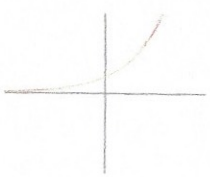
$3y + 5 = \frac{3}{2}$

$3y = -\frac{7}{2}$ $y = -\frac{7}{6}$

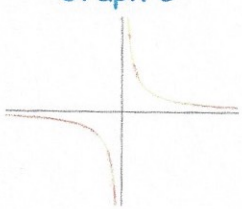
Graph A



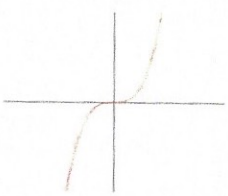
Graph B



Graph C



Graph D



$y = x^2$ is graph **A**

$y = x^3$ is graph D

$y = 2^x$ is graph B

$y = \frac{1}{x}$ is graph C