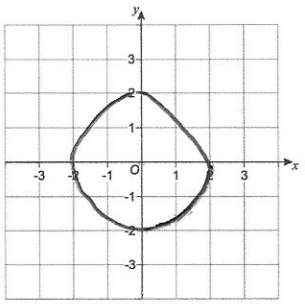
22nd December **Higher Plus 5-a-day**

Corbettmaths

Sketch $x^2 + y^2 = 4$

$r = 2$



$f(x) = \dfrac{3x-2}{x-5}$

Work out $f^{-1}(2)$

$y = \dfrac{3x-2}{x-5}$

$yx - 5y = 3x - 2$

$2 - 5y = 3x - yx$

$x(3-y) = 2-5y$

$x = \dfrac{2-5y}{3-y}$

$f^{-1}(x) = \dfrac{2-5x}{3-x}$

$f^{-1}(2) = \dfrac{2-10}{3-2}$

$= -8$

A drone flies a distance of 80m at a speed of 4m/s, with both values given to 1 significant figure.

85m / 75m

4.5s / 3.5s

Write the error interval for the time taken, T.

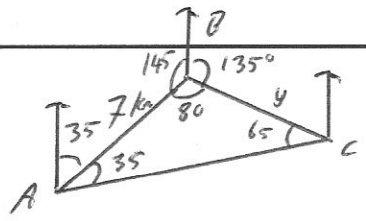
$\dfrac{85}{3.5} = 24\frac{2}{7}$ m/s

$\dfrac{75}{4.5} = 16\frac{2}{3}$

$16\frac{2}{3} < T < 24\frac{2}{7}$

Ship B is 7km, on a bearing of 035°, from Ship A. Ship C is located on a bearing of 070° from Ship A and on a bearing of 135° from Ship B.

Work out the distance of Ship C from Ship B.



$\dfrac{y}{\sin 35} = \dfrac{7}{\sin 65}$

4.43km

The curve

$y = a + b^x$

passes through the points (1, 5) and (2, 17) where a > 0 and b > 0.

x y

$5 = a + b$

$17 = a + b^2$

$a = 5 - b$

Find a and b

$17 = 5 - b + b^2$

$0 = b^2 - b - 12$

$(b-4)(b+3) = 0$

$b = 4$

$a = 1$