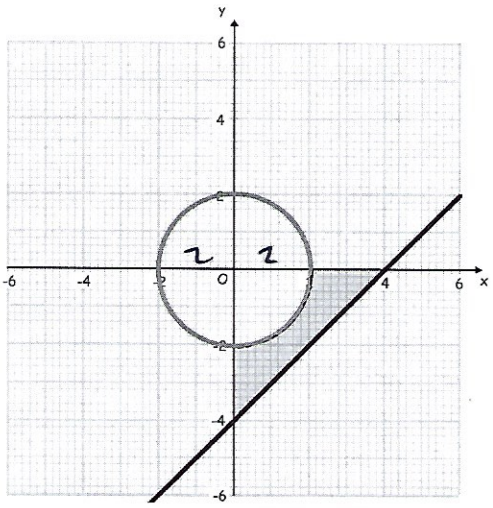
Name: _____ 5-a-day Further Maths

20th April

Corbettmaths

The circle below has equation
$x^2 + y^2 = 4$ $r = 2$

The line has equation $y = x - 4$



Find the perimeter of the shaded region.

$\frac{1}{4}(\pi \times 4) + 2 + 2 + \sqrt{4^2+4^2}$

$\pi + 4 + \sqrt{32}$

$= \pi + 4 + 4\sqrt{2}$

$= 12.8$

Given that $sin\theta = \frac{15}{17}$

Work out the **two** possible values of $cos\theta$

$\cos^2\theta + \sin^2\theta = 1$

$\cos^2\theta + \frac{225}{289} = 1$

$\cos^2\theta = \frac{64}{289}$

$\cos\theta = \pm\frac{8}{17}$

x : y = 2 : 9 $9x = 2y$

y : z = 4 : 1 $y = 4z$

Write z in terms of x $2y = 8z$

$9x = 8z$

$z = \frac{9}{8}x$

$f(x) = x^2 - 4x$ for all values of x

State the range of $f(2x)$

$f(2x) = (2x)^2 - 4(2x)$

$= 4x^2 - 8x$

$= 4(x^2 - 2x)$

$= 4[(x-1)^2 - 1]$

$= 4(x-1)^2 - 4$

$f(2x) \geq -4$