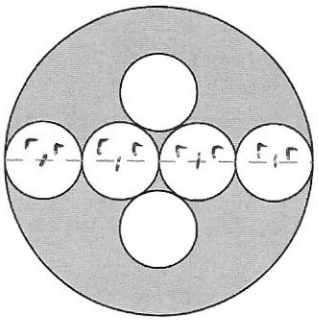
15th April **Higher Plus 5-a-day**

Corbettmaths



large circle

$\pi(4r)^2$

$= 16\pi r^2$

Six congruent small circles are drawn inside of a larger circle.
Find the percentage of the large circle that is shaded.

small circles πr^2

total white area $6\pi r^2$

total shaded area $10\pi r^2$

$\frac{10\pi r^2}{16\pi r^2} \times 100$

62.5%

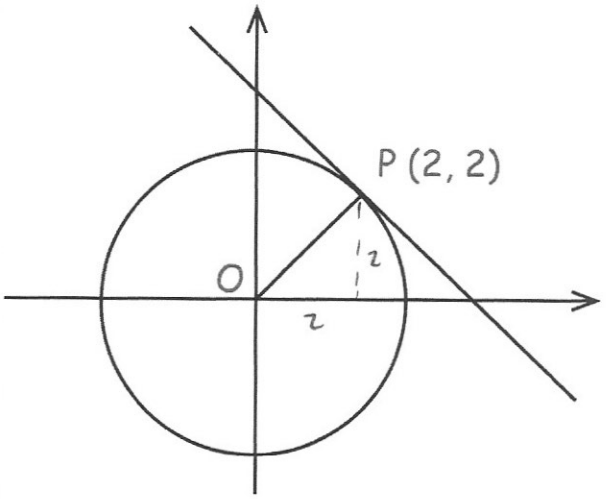
The diagram shows the circle $x^2 + y^2 = 8$ with a tangent at the point (2, 2)

Find the gradient of the line OP.

$\frac{2}{2} = 1$

Find the gradient of the tangent

-1



Find the equation of the tangent

$y = -x + c$

$2 = -2 + c$

$c = 4$

$y = -x + 4$

Solve

$$\frac{3}{2x-3} + \frac{2}{3x+1} = 1$$

$\frac{3(3x+1) + 2(2x-3)}{(2x-3)(3x+1)} = 1$

$9x + 3 + 4x - 6 = (2x-3)(3x+1)$

$13x - 3 = 6x^2 - 7x - 3$

$0 = 6x^2 - 20x$

$0 = 3x^2 - 10x$ $\quad x = 0$ or $x = \frac{10}{3}$

$0 = x(3x - 10)$