

Work out the coordinates of point P.

$$(18, 5)$$

APB is a straight line.

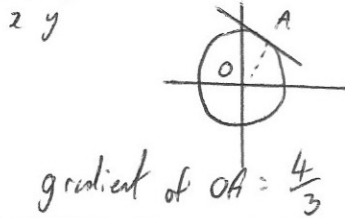
$$AP:PB = 5:2$$

$$28 \div 7 = 4$$

$$5 \times 4 = 20$$

$$2 \times 4 = 8$$

Write down the equation of the tangent to the circle $x^2 + y^2 = 25$ at the point (3, 4)

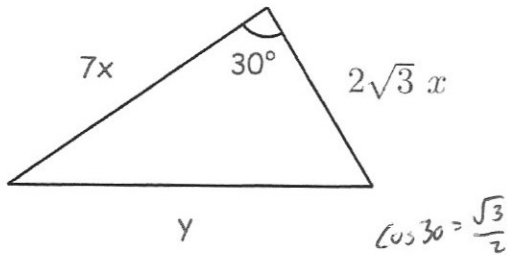


$$y = -\frac{3}{4}x + c$$

$$4 = -\frac{9}{4} + c$$

$$c = \frac{25}{4}$$

$$y = -\frac{3}{4}x + \frac{25}{4}$$



$$y^2 = (7x)^2 + (2\sqrt{3}x)^2 - 2 \times 7x \times 2\sqrt{3}x \times \cos 30$$

$$y^2 = 49x^2 + 12x^2 - 42x^2$$

$$y^2 = 19x^2$$

$$y = \sqrt{19}x$$

Express y in terms of x

Mr Kelly has two pots of pens.
 In pot 1, there are 5 black and 3 green pens.
 In pot 2, there are 2 black and 2 green pens.

$$P(GGG) = \frac{3}{8} \times \frac{2}{7} \times \frac{1}{6} = \frac{1}{56}$$

$$P(BB) = \frac{2}{7} \times \frac{1}{6} = \frac{1}{21}$$

Mr Kelly removes 3 pens at random from pot 1 and places them into pot 2.

$$\frac{1}{56} \times \frac{1}{21} = \frac{1}{1176}$$

Mr Kelly now removes 2 pens at random from pot 2 and places them in pot 1.

What is the probability that pot 1 now holds 7 black pens and pot 2 holds 5 green pens?