

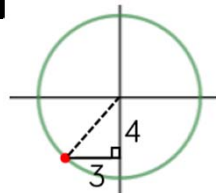
Year 11 Mathematics Learning Journey: Unit 4 - Algebra 2

Step 12: Equation of a tangent to a circle

C is a circle with equation $x^2 + y^2 = 9$. $P(\frac{4}{3}, \frac{2\sqrt{14}}{3})$ is a point on C. Find an equation of the tangent to C at the point P.

Step 10: Equation of a circle

Find the radius of the circle.



Step 9: Shading regions

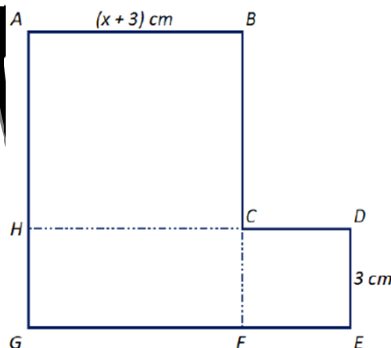
$4x + 3y < 12$, $y < 3x$, $y > 0$ and $x > 0$. x and y are both integers. On a grid, mark with a cross each of the three points which satisfy all these four inequalities.

Step 8: Quadratic inequalities

Solve $2x^2 - 11x + 9 < 0$

Step 4: Solve linear equations and inequalities

ABCH is a square. HCFG is a rectangle. CDEF is a square. Find an expression for the total area of the L-shape.



Step 5: Iteration

Starting with $x_0 = 3$ use the iteration formula three times to find an estimate for the solution to $x^3 - 2x^2 = 7$

$$x_{n+1} = \frac{7}{x_n^2} + 2$$

Step 6: Simultaneous equations

Solve the simultaneous equations $x^2 + y^2 = 20$ and $2x + y = 3$, giving your answers to 3dp.

Step 7: Formal algebraic proof

Prove that the sum of the squares of two consecutive odd numbers is always 2 more than a multiple of 8.

Step 3: Change the subject

Make x the subject of the formula $y = \frac{x+2}{x-2}$

Step 2: Special sequences

Here are the first five terms of a Fibonacci sequence: 2, 2, 4, 6, 10. Find the 8th term of the sequence.

Step 1: Quadratic sequences

Find the n th term of the quadratic sequence 6, 10, 16, 24, ...

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