Simultaneous equations

(Past Year Topical Questions 2012-2017)

May/June 2012 (12)

4.

Solve the simultaneous equations $5x + 3y = 2$ and $\frac{2}{x} - \frac{3}{y} = 1$. [5]

Oct/Nov 2012 (12)

5.

The line $x - 2y = 6$ intersects the curve $x^2 + xy + 10y + 4y^2 = 156$ at the points A and B. Find the length of AB. [7]

May/June 2013 (12)

5.

The line $3x + 4y = 15$ cuts the curve $2xy = 9$ at the points A and B. Find the length of the line AB. [6]

Oct/Nov 2014 (13)

2.

The line $4y = x + 8$ cuts the curve $xy = 4 + 2x$ at the points A and B. Find the exact length of AB. [5]

May/June 2015 (11)

5.

The curve $y = xy + x^2 - 4$ intersects the line $y = 3x - 1$ at the points A and B. Find the equation of the perpendicular bisector of the line AB. [8]

Oct/Nov 2015 (11)
12.

The line $2x - y + 1 = 0$ meets the curve $x^2 + 3y = 19$ at the points A and B. The perpendicular bisector of the line AB meets the x-axis at the point C. Find the area of the triangle ABC. [9]

Oct/Nov 2015 (13)
11.

The line $x - y + 2 = 0$ intersects the curve $2x^2 - y^2 + 2x + 1 = 0$ at the points A and B. The perpendicular bisector of the line AB intersects the curve at the points C and D. Find the length of the line CD in the form $a\sqrt{5}$, where a is an integer. [10]