

3.1 **A curve passes through**

$(-4, 9)$ and

$$\frac{dy}{dx} = \frac{x^3}{2} + \frac{x}{4} - 1$$

Find y in terms of x

Solve simultaneously

$$x^2 + y^2 = 25$$

$$y - x = 1$$

Lengths of branches were measured and the number of leaves counted, r was calculated to be 0.935. Interpret r .

Solve

$$x(x + 1) < 12$$

Sketch the graph of $y = \sin x$

Find the sum of the first 20 terms of the arithmetic sequence

2, 5, 8, ...

FIND $f'(x)$ WHEN

$$f(x) = 3x^2 + \frac{2}{x^3}$$

Solve

$$x^2 + 2x = -2$$

Find the equation of the line that passes through $(12, 5)$ and $(8, -7)$

Given that

$$f'(x) = 15x^2 - 6x + 4$$

if $f(1) = 0$ find $f(x)$ **Sketch the graph of $y = \cos x$** **The 4th term of an arithmetic sequence is 15 and the 9th term is 35. Find the first term and the common difference****Solve simultaneously**

$$y^2 = xy$$

$$y + x = 1$$

Lengths of branches (x m) were measured and the number of leaves (y) counted, the regression line was found to be $y = 3 + 23x$. Interpret 'b'.**FIND $f'(x)$ WHEN**

$$f(x) = 3\sqrt{x} + \frac{7}{x^2}$$

Solve

$$x^2 = 4x - 7$$

Solve

$$(x + 1)^2 < 9$$

Find the equation of the line that passes through $(1, 3)$ and is parallel to $2x + 7y = 5$

3.3

The graph of $y = f(x)$ passes through the origin and $f'(x) = 8x - 5$ find $f(x)$

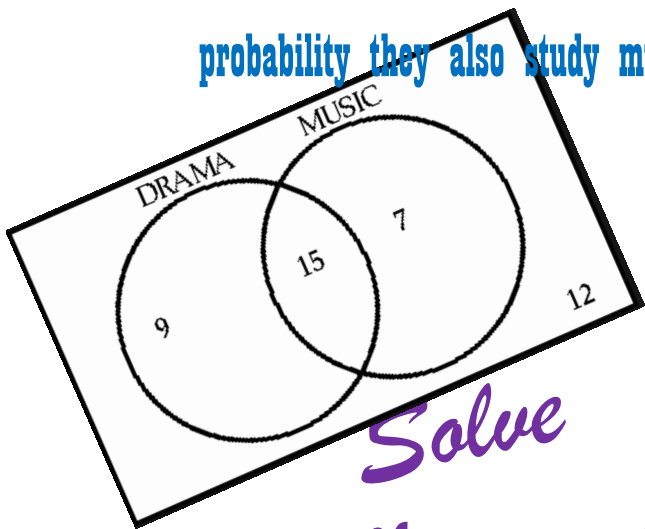
Sketch the graph of $y = \tan x$

How many terms of the arithmetic sequence 3, 7, 11 have been added to give a sum of 820?

**Solve simultaneously $y^2 + x^2 = 25$
 $y + 2x = 5$**

FIND $f''(x)$ WHEN $f(x) = 3x + \frac{1}{\sqrt{x}}$

Given a student studies drama find the probability they also study music.



Solve

$3x^2 = 5x + 6$

Solve $\frac{x}{x-2} < 5$

The point P is the foot of the perpendicular from the point (0, 3) to the line $y = 3x$. Find the equation of the line AP

3.4

The graph of $y = f(x)$ passes through

$(4, 25)$ and

$f'(x) = 6\sqrt{x}$ find $f(x)$

Sketch the graph of $y = 2\cos x$

The sequence u_1, u_2, u_3, \dots is defined by $u_1 = 0, u_{n+1} = (2 + u_n)^2$. Find the value of u_4

Solve simultaneously

$$x^2 - y^2 = 8$$

$$y = 2 - x$$

FIND $f''(x)$ WHEN

$$f(x) = 3\sqrt{x} + \frac{7}{x^2}$$

Estimate the median by interpolation

Height (cm)	Frequency
120 - 129	3
130 - 139	12
140 - 149	7

Find the values of k where $kx^2 + kx + 2 = 0$ has two distinct real roots

solve

$$x^2 = -5x - 2$$

The straight line p passes through $(10, 1)$ and is perpendicular to $2x + y = 1$, find the equation of p

3.5

The graph of $y = f(x)$ passes through

$(\frac{1}{2}, 5)$ and

$f'(x) = \frac{4}{x^2}$ find $f(x)$

Solve simultaneously

$$x^2 + 2xy + 3 = 0$$

$$y = 3x - 11$$

Find the mean and standard deviation of the data set:

16, 4, 3, 1, 5, 9, 7, 7, 21, 16, 20

Find the values of k where

$k^2x^2 + 2kx + 1 = 0$ has no real roots

Sketch the graph of

$$y = \sin(x + \frac{\pi}{2})$$

A squirrel collects nuts. It collects 5 on the first day, 8 on the second, 11 on the third etc. After how many days will it have collected more than 1000 nuts?

FIND $f'(x)$ WHEN

$$f(x) = \frac{7x - \sqrt{x}}{x^2}$$

Solve

$$x^2 = -3x - 5$$

Find the equation of the line that passes through $(3, -1)$ and $(-2, 2)$