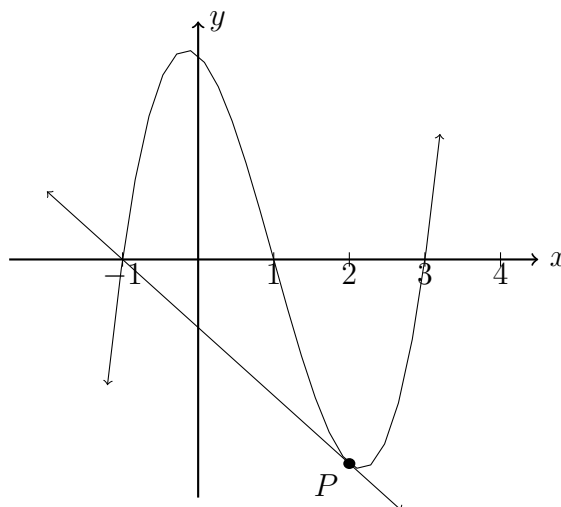


Name:

6.7 Do Now Quiz: Tangents, systems of equations, linear regression
Calculator practice D

1. A cubic function $f(x) = x^3 - 3x^2 - x + 3$ is shown on the axes below.



A tangent to the function at $x = 2$ is drawn with the point of tangency P .

- (a) Find the coordinates of P . [1]
- (b) Write down the derivative of the function, $f'(x)$. [2]
- (c) Show that the gradient of the tangent line is -1 . [1]
- (d) Write down the equation of the tangent line. [2]

Working:

Answers:

- (a)
- (b)
- (d)

2. Find the solutions for the system, the value(s) for x such that $f(x) = g(x)$. Sketch the graph to show working.

(a) $f(x) = -2x^2 + 3x + 5$

$g(x) = -2x + 1$

[3]

Working:

Answers:

(a)

3. Perform a linear regression on the data in the table, finding $y = ax + b$.

x	53	54	56	60	61	65
y	11.5	11.6	12.0	12.2	12.5	12.3

(a) Write down the value of a , b . [3]

(b) Write down the correlation coefficient r . [1]

(c) Use your regression line to estimate y for $x = 58$. [2]

Working:

Answers:

(a)(i)

(ii)

(b)

(c)