

Activity 2

Which of the following questions have been taken from a P1 paper and which have been taken from an Edexcel International paper?

A The line L_1 has equation $3x + 5y - 7 = 0$

(a) Find the gradient of L_1

The line L_2 is perpendicular to L_1 and passes through the point $(6, -2)$.

(b) Find the equation of L_2 in the form $y = mx + c$, where m and c are constants.

B Solve the simultaneous equations

$$y = 8 - 2x$$

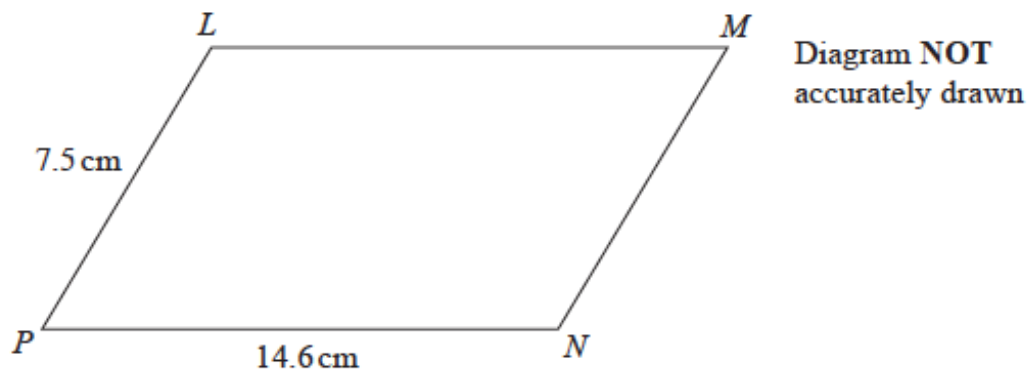
$$x^2 + y^2 = 29$$

You must show working.

C Find the value of n such that $4^n \times 8^{n+1} = 16$

You must show working.

D The diagram shows a parallelogram $LMNP$.



$$LN = 13.3 \text{ cm}$$

Calculate the area of the parallelogram.

Give your answer correct to 3 significant figures.

Activity 2

E

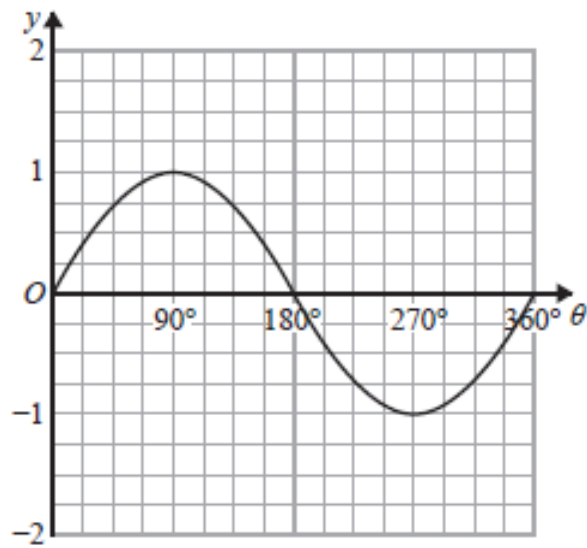


Figure 3

State the coordinates of the minimum point on the curve with equation

$$y = 4 \sin \theta, \quad 0 \leq \theta \leq 360^\circ$$

F

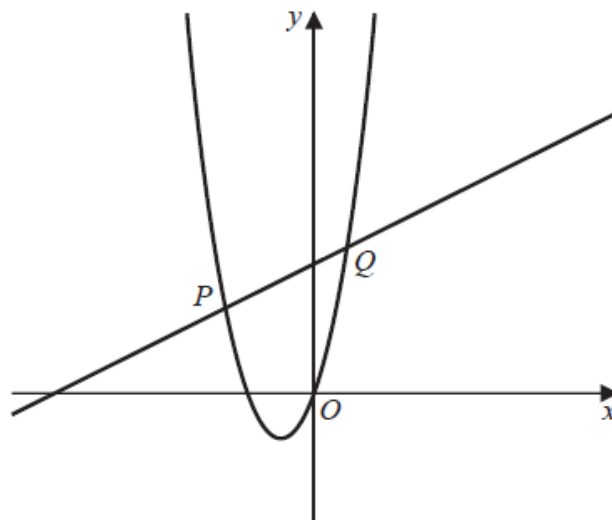


Figure 1

Figure 1 shows a sketch of the curve with equation $y = 2x^2 + 3x$ and the straight line with equation $y = \frac{1}{2}x + 3$

The line meets the curve at the points P and Q , as shown in Figure 1.

(a) Using algebra, find the coordinates of P and the coordinates of Q .

Activity 2

G Solve the equation

$$3x = x\sqrt{2} + 14$$

giving your answer as a simplified surd.

H Solve the inequality $2x^2 - 32 < 0$
You must show working.

I

The curve C has equation $y = \frac{1}{8}x^3 - \frac{24}{\sqrt{x}} + 1$

(a) Find $\frac{dy}{dx}$, giving the answer in its simplest form.

J The functions f and g are such that

$$f(x) = \frac{1}{2}x + 3$$

$$g(x) = \frac{14}{2x - 3}$$

Solve $f^{-1}(x) = gf(x)$
You must show working

K

$$f(x) = (x + 2)(x - 10)(2x - 3)$$

(b) Expand $f(x)$ to the form

$$2x^3 + ax^2 + bx + 60$$

where a and b are integers to be found.