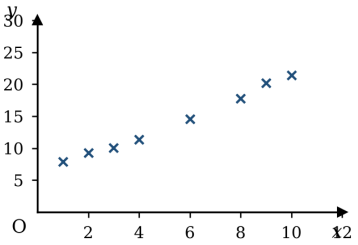
Day 40 **A Level Maths: B Tier 10-a-day**

1 A and B are independent events with P(A) = 0.1 and P(A ∪ B) = 0.64.
(a) Find P(B).
(b) Find P(A' ∩ B').

2 A lift of mass 1000 kg is raised and lowered by a vertical cable. The lift accelerates upwards at 1.5 m s^{-2}.
Take g = 9.8 m s^{-2}.
Find the tension in the cable.

3 The scatter diagram shows eight pairs of values of x and y.
(a) Describe the correlation.
(b) Why should y = 6 + 1.5x not be used for x = 15?



4 Use the trapezium rule with 4 strips to estimate $\int_0^2 \sqrt{1 + x^3}\, dx$,
giving your answer to 3 significant figures.

5 Solve $2^{4x} = 4^{3x - 3}$.

Day 40	A Level Maths: B Tier 10-a-day
6 Solve $\sin x = 0.3$ for $0 \leq x \leq 2\pi$, giving answers to 3 significant figures.	
7 Express $\frac{-6x - 22}{(x + 1)(x + 5)}$ in partial fractions.	
8 A particle moves so that at time t s its velocity is $\mathbf{v} = (2t^2 + 4)\mathbf{i} + (4t - 12)\mathbf{j}$ m s^{-1}. Find the time when the particle is moving in the direction of $\mathbf{i}$, and its speed then.	
9 $f(x) = x^2 - 8x + 20$ for $x \geq 2$. Find the range of f.	
10 Find the exact value of sec 135°, giving your answer with a rational denominator.	