YOU & MATHS A square has a perimeter $p > 0$ and area $A = 2p$, then what is the value of p?

A 24

B 32

C 36

D 48

E 54

Let us indicate by l the measure of the side of the square. We know that the area of the square can be calculated as

$$A = l^2$$

and its perimeter as

$$p = 4l.$$

By substituting these equalities in the relationship between area and perimeter given by the problem, we get:

$$A = 2p \; \rightarrow \; l^2 = 2 \cdot 4l \; \rightarrow \; l^2 = 8l,$$

which can be solved as follows:

$$l^2 = 8l \; \rightarrow \; l^2 - 8l = 0 \; \rightarrow \; l(l - 8) = 0 \; \rightarrow \; l = 0 \; \lor \; l = 8.$$

As l represents the measure of the side of the square, it must be strictly positive. Therefore l must be equal to 8, which implies that the perimeter p of the square is equal to:

$$p = 4l = 4 \cdot 8 = 32.$$

Our final answer is B.