



22. M and N are the midpoints of sides GH and FG , respectively, of parallelogram $EFGH$. The area of triangle ENM is 12 cm^2 . What is the area of the parallelogram $EFGH$?
- A 20 cm^2 B 24 cm^2 C 32 cm^2 D 48 cm^2 E more information is required

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22. C Let the perpendicular distance between EH and FG be $x \text{ cm}$ and the area of the parallelogram $EFGH$ be $y \text{ cm}^2$. Thus $y = FG \times x$. The area of triangle EFN is $\frac{1}{2}FN \times x = \frac{1}{2} \times \frac{1}{2} \times FG \times x = \frac{1}{4}y \text{ cm}^2$. Likewise the areas of triangles EHM and NGM are $\frac{1}{4}y \text{ cm}^2$ and $\frac{1}{4}y \text{ cm}^2$ respectively. The area of triangle ENM is 12 cm^2 , hence $y = 12 + \frac{5}{8}y$ and so $y = 32$. Hence the area of the parallelogram $EFGH$ is 32 cm^2 .

