🇬🇧 TEST YOUR SKILLS

1 **TEST** Find an expression for the perimeter of a rectangle in terms of its area, A, and the length of its diagonal, d.

A $\dfrac{4A}{d}$

B $2(\sqrt{2A} + d)$

C $\sqrt{4d^2 + 2A}$

D $2(\sqrt{d^2 + 2A})$

E None of these.

(USA *North Carolina State High School Mathematics Contest*, 2004)

2 **TEST** In trapezoid $ABCD$ with bases AB and CD, we have $AB = 52$, $BC = 12$, $CD = 39$, and $DA = 5$. The area of $ABCD$ is:

A 182

B 195

C 210

D 234

E 260

(USA *American Mathematics Contest 10, AMC 10*, Sample questions, 2002)

3 **TEST** The measure of $\hat{A}$ is twice the measure of its complement, $\hat{B}$. What is $2 \cdot \hat{A} + 6 \cdot \hat{B}$?

A 90°

B 300°

C 420°

D 480°

E 520°

(USA *Indiana State Mathematics Contest*, 2005)

4 In a trapezoid $ABCD$ with AB parallel to CD, the diagonals intersect at a point E. The area of triangle ABE is 32 and of triangle CDE is 50. Find the area of the trapezoid.

(USA *North Carolina State High School Mathematics Contest*, 2004)

[162]
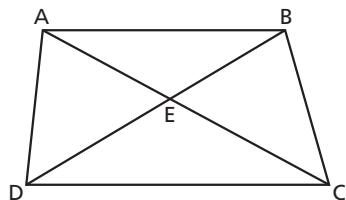
5 In an isosceles right-angled triangle AOB, points P, Q and S are chosen on sides OB, OA and AB respectively such that a square $PQRS$ is formed as shown. If the lengths of OP and OQ are a and b respectively, and the area of $PQRS$ is $\dfrac{2}{5}$ that of triangle AOB, determine $a{:}b$.

(CAN *The 2nd Canadian Open Mathematics Challenge*, 1997)

[2]
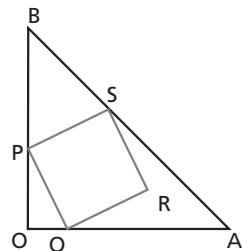
6 **TEST** A rectangle is divided into four rectangles with areas 45, 25, 15, and x. Find x.

25	45
15	x

A 23

B 27

C 30

D 32

E None of these.
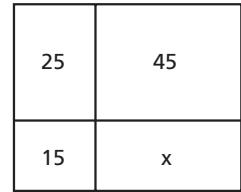
(USA *University of North Carolina: Geometry State Finals*, 1999)

GLOSSARY

complement: complementare	**length**: lunghezza	**square**: quadrato
diagonal: diagonale	**perimeter**: perimetro	**trapezoid**: trapezio
to intersect: intersecare	**right-angled**: rettangolo	**twice**: doppio