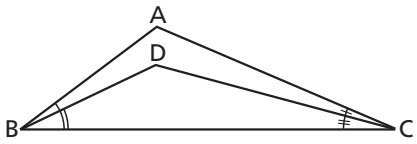
TEST YOUR SKILLS

1 In triangle ABC, $\hat{A}$ equals 120 degrees. A point D is inside the triangle such that $D\hat{B}C = 2 \cdot A\hat{B}D$ and $D\hat{C}B = 2 \cdot A\hat{C}D$. Determine the measure, in degrees, of $B\hat{D}C$.



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

[140°]

TEST

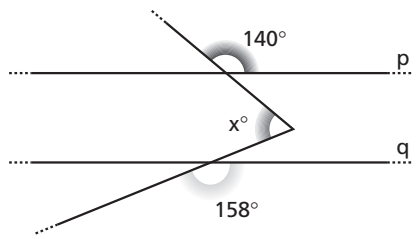
2 The difference between the sum of the measures of the interior angles of a convex decagon and the sum of the measures of the interior angles of a convex octagon equals the sum of the measures of the interior angles of a convex ……

A quadrilateral.
B pentagon.
C hexagon.
D heptagon.
E None of these answers.

(USA *Northern State University: 50th Annual Mathematics Contest*, 2003)

3 Assume $p \parallel q$ in the figure shown. Then x equals:

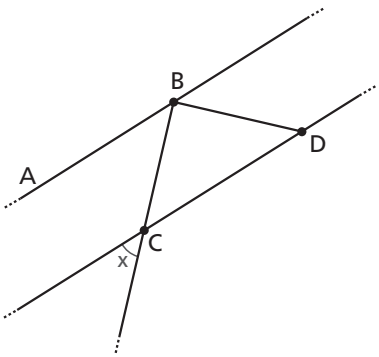
A 18.
B 22.
C 40.
D 62.
E It cannot be determined from the information given.



(USA *University of North Carolina: Western Region State Mathematics Finals*, 2003)

4 Lines AB and CD are parallel and $\overline{CB} = \overline{BD}$. Given that x is an acute angle not equal to 60°, how many *other* angles in this diagram are equal to x?

A 1
B 2
C 3
D 4
E 5



(UK *Intermediate Mathematical Challenge*, 2003)

5 Which of the following statements is not true?

A A rectangle is a parallelogram with four right angles.
B A rhombus is a parallelogram with four congruent sides.
C The diagonals of a rhombus are perpendicular.
D The diagonals of a rectangle are congruent.
E None of these statements.

(USA *Northern State University: 52nd Annual Mathematics Contest*, 2005)

6 If the diagonals of a quadrilateral are perpendicular to each other, the figure would always be included under the general classification:

A rhombus.
B rectangle.
C square.
D trapezoid.
E none of these.

(USA *Indiana State Mathematics Contest*, 2005)

7 Which of these statements is not a property of all trapezoids?

A Two sides are parallel.

B Diagonals intersect.

C Diagonals are congruent.

D Two pairs of angles are supplementary.

E None of these answers.

(USA *Northern State University: 50th Annual Mathematics Contest*, 2003)

8 Here are three properties of a figure.
Property D: It has diagonals of equal length.
Property S: It is a square.
Property R: It is a rectangle.
Which of the following statements is true?

A If D then S and if S then R.

B If D then R and if R then S.

C If S then R and if R then D.

D If R then D and if D then S.

E If R then S and if S then D.

(USA *Northern State University: 48th Annual Mathematics Contest*, 2001)

GLOSSARY

to assume: assumere
convex: convesso
degree: grado
diagram: grafico, schema
heptagon: ettagono
hexagon: esagono
length: lunghezza
pentagon: pentagono
rectangle: rettangolo
rhombus: rombo
right: retto
side: lato
square: quadrato
statement: proposizione
trapezoid: trapezio