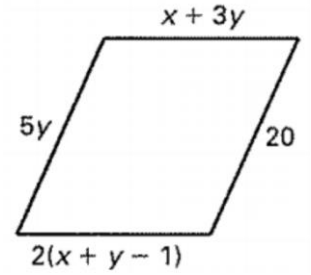
Quadrilaterals and Logic

1. What value of x and y will make quadrilateral $KLMN$ a parallelogram?



A. $x = 4$ and $y = 6$

B. $x = 5$ and $y = 7$

C. $x = 6$ and $y = 4$

D. $x = 7$ and $y = 5$

2. The diagonals of rectangle $ABCD$ intersect at point E. If $DE = 4x + 28$ and $CE = 3(2x + 4)$, find AC.

A. 8

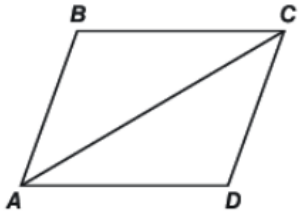
B. 30

C. 60

D. 120

3. Use the given proof to answer the question below:

Given ABCD is a parallelogram.



Prove: $\overline{AD} \cong \overline{CB}$

	Statements	Reasons
1	$ABCD$ is a parallelogram	Given
2	$\overline{AB} \parallel \overline{CD}$ and $\overline{AD} \parallel \overline{BC}$	Definition of parallelogram
3	_____ and _____	Alternate interior angles theorem
4	$\overline{AC} \cong \overline{AC}$	Reflexive property
5	$\Delta DCA \cong \Delta BAC$	_____
6	$\overline{AD} \cong \overline{CB}$	C.P.C.T.C.

Which of the options below complete the proof?

A. Statement 3: $\angle BAC \cong \angle CAD$ and $\angle BCA \cong \angle DCA$
Reason 5: A.A.S. Postulate

B. Statement 3: $\angle BAC \cong \angle CAD$ and $\angle BCA \cong \angle DCA$
Reason 5: A.S.A Postulate

C. Statement 3: $\angle BAC \cong \angle DCA$ and $\angle BCA \cong \angle DAC$
Reason 5: A.A.S. Postulate

D. Statement 3: $\angle BAC \cong \angle DCA$ and $\angle BCA \cong \angle DAC$
Reason 5: A.S.A Postulate

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4. Two parallel sides, $\overline{AB}$ and $\overline{CD}$, of the trapezoid, $ABCD$ are 7.3 and 5.5. If the midsegment of trapezoid $ABCD$ is $(3x - 2.6)$, what is the value of x?

   A. 2

   B. 3

   C. 3.6

   D. 6.4

5. Two conditional statements are shown below.

   Statement A: If two angles are vertical, then the angles are congruent.
   Statement B: If the two angles are not vertical, then the angles are not congruent.

   How is statement B related to statement A?

   A. Inverse

   B. Conditional

   C. Contrapositive

   D. Converse