# page 35-36



Name: _____ Math

Quadrilateral 2B

1) Which one of the following statements about a figure ABCD would *always* be true?

A) If ABCD is a rectangle, then it must be a square.

B) If ABCD is a quadrilateral, then it must be a parallelogram.

C) If ABCD is a parallelogram, then it must be a quadrilateral

D) If ABCD is a parallelogram, then it must be a trapezoid.

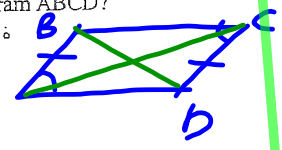
2) Which one of the following statements is *not* true for any given parallelogram ABCD?

A) $m\angle B + m\angle C = 180°$

B) $\overline{AB} \cong \overline{DC}$

C) $\angle A \cong \angle C$

D) $\overline{AC} \perp \overline{DB}$



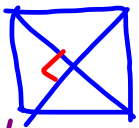

3) In which one of the following quadrilaterals are the diagonals *always* perpendicular?

A) rectangle

B) square

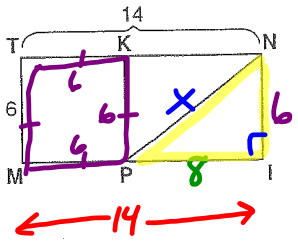
C) parallelogram

D) trapezoid

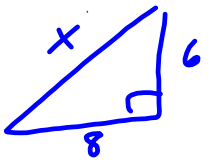


also rhombus

4) In the accompanying diagram, MINT is a rectangle and MPKT is a square. If MT = 6 and TN = 14, find PN.




$14 - 6 = 8$

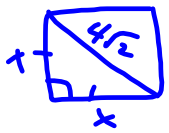



$6^2 + 8^2 = x^2$

$100 = x^2$

$10 = x$

5) What is the length of a side of a square whose diagonal measures $4\sqrt{2}$?



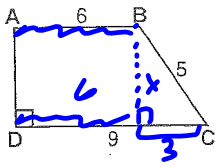

$x^2 + x^2 = (4\sqrt{2})^2$

$2x^2 = 32$

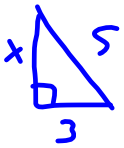
$x^2 = 16$

$x = 4$

6) In the accompanying diagram of trapezoid ABCD, $\overline{AD} \perp \overline{DC}$, AB = 6, DC = 9, and CB = 5. Find AD.



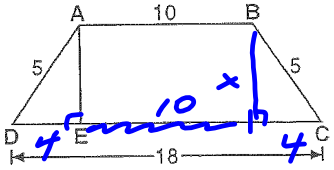

$9 - 6 = 3$




$3^2 + x^2 = 5^2$

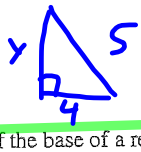
$x = 4$

7) In the accompanying diagram, ABCD is an isosceles trapezoid, AD = BC = 5, AB = 10, and DC = 18. Find the length of altitude $\overline{AE}$.




$18 - 10 = 8$

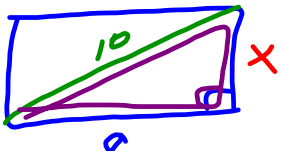
$\frac{8}{2} = 4$

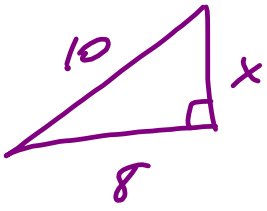



$x^2 + 4^2 = 5^2$

$x = 3$

8) If the base of a rectangle is 8 and one diagonal is 10, what is the ~~height of the rectangle~~?

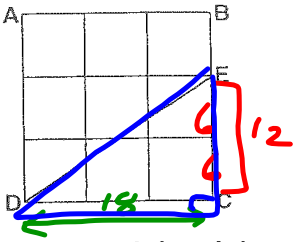



$x^2 + 8^2 = 10^2$

$x = 6$

9) Mrs. Thompson has a square garden that has been divided into nine congruent plots as shown in the diagram below.



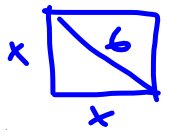

She would like to cut a path through the garden as indicated by $\overline{DE}$. If $CE = 12$ ft, what is the length of $\overline{DE}$ in simplest radical form?

IF 2 BLOCKS = 12,
1 BLOCK = 6
makes DC = 18

$12^2 + 18^2 = x^2$

$468 = x^2 = 6\sqrt{13}$

10) The length of the diagonal of a square is 6. Find the length of a side of the square.



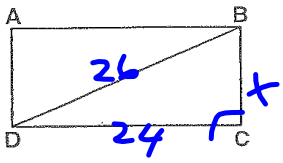

$x^2 + x^2 = 6^2$

$2x^2 = 36$

$x^2 = 18$

$x = 3\sqrt{2}$

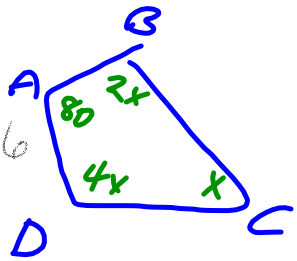
11) In the accompanying diagram, ABCD is a rectangle. If DB = 26 and DC = 24, find BC.




$x^2 + 24^2 = 26^2$

$x = 10$

12) In quadrilateral ABCD, $m\angle A = 80°$, $m\angle B = 2x°$, $m\angle C = x°$, and $m\angle D = 4x°$. Find $x$.



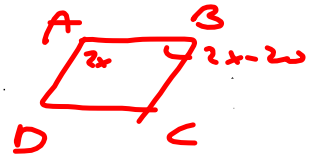

$4x + x + 2x + 80 = 360$

$7x + 80 = 360$

$7x = 280$

$x = 40$

13) In a parallelogram ABCD, $m\angle A = (2x)°$ and $m\angle B = (2x - 20)°$. Find $x$.

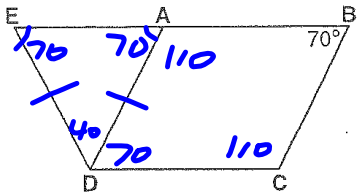



$2x + 2x - 20 = 180$

$4x = 200$

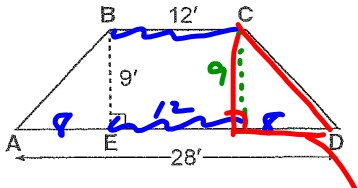
$x = 50$

14) In the accompanying diagram, ABCD is a parallelogram, $\overline{DA} \cong \overline{DE}$, and $m\angle B = 70°$. Find $m\angle E$.



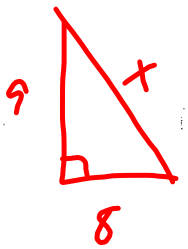

$\angle E = 70$

15) The cross section of an attic is in the shape of an isosceles trapezoid, as shown in the accompanying figure.




If the height of the attic is 9 feet, BC = 12 feet, and AD = 28 feet, find the length of $\overline{AB}$ to the nearest foot.

$28 - 12 = \frac{16}{2} = 8$




$8^2 + 9^2 = x^2$

$64 + 81 = x^2$

$145 = x^2$

$x = 12$