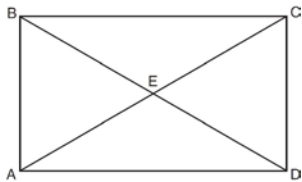


G.CO.C.11: Special Quadrilaterals 1b

1 What is the perimeter of a square whose diagonal is $3\sqrt{2}$?

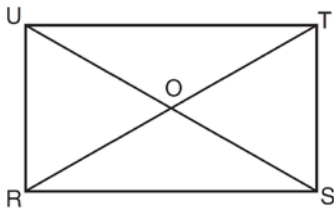
2 A builder is building a rectangular deck with dimensions of 16 feet by 30 feet. To ensure that the sides form 90° angles, what should each diagonal measure?

3 As shown in the diagram of rectangle $ABCD$ below, diagonals \overline{AC} and \overline{BD} intersect at E .



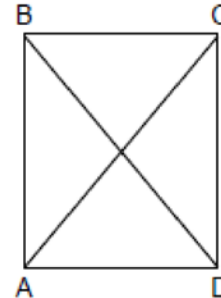
If $\overline{AE} = x + 2$ and $\overline{BD} = 4x - 16$, then the length of \overline{AC} is

4 In the diagram below of rectangle $RSTU$, diagonals \overline{RT} and \overline{SU} intersect at O .



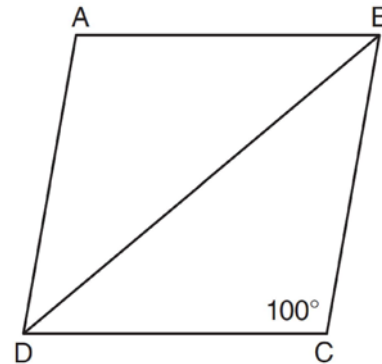
If $\overline{RT} = 6x + 4$ and $\overline{SO} = 7x - 6$, what is the length of \overline{US} ?

5 In the accompanying diagram of rectangle $ABCD$, $m\angle BAC = 3x + 4$ and $m\angle ACD = x + 28$.



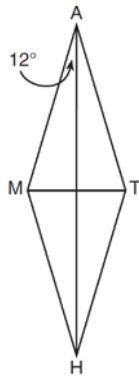
What is $m\angle CAD$?

6 In the diagram below of rhombus $ABCD$, $m\angle C = 100$.



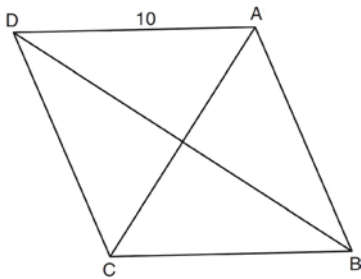
What is $m\angle DBC$?

- 7 In the diagram below, $MATH$ is a rhombus with diagonals \overline{AH} and \overline{MT} .



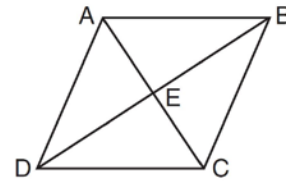
If $m\angle HAM = 12$, what is $m\angle AMT$?

- 8 In rhombus $ABCD$, with diagonals \overline{AC} and \overline{DB} , $AD = 10$.



If the length of diagonal \overline{AC} is 12, what is the length of \overline{DB} ?

- 9 In the diagram below of rhombus $ABCD$, the diagonals \overline{AC} and \overline{BD} intersect at E .



If $AC = 18$ and $BD = 24$, what is the length of one side of rhombus $ABCD$?

- 10 In rhombus $ABCD$, the diagonals \overline{AC} and \overline{BD} intersect at E . If $AE = 5$ and $BE = 12$, what is the length of \overline{AB} ?
- 11 What is the perimeter of a rhombus whose diagonals are 16 and 30?
- 12 Which set of statements would describe a parallelogram that can always be classified as a rhombus?
- I. Diagonals are perpendicular bisectors of each other.
 - II. Diagonals bisect the angles from which they are drawn.
 - III. Diagonals form four congruent isosceles right triangles.
- 13 A set of five quadrilaterals consists of a square, a rhombus, a rectangle, an isosceles trapezoid, and a parallelogram. Lu selects one of these figures at random. What is the probability that both pairs of the figure's opposite sides are parallel?

G.CO.C.11: Special Quadrilaterals 1b

Answer Section

1 ANS:

12

$$s^2 + s^2 = (3\sqrt{2})^2$$

$$2s^2 = 18$$

$$s^2 = 9$$

$$s = 3$$

REF: 011420ge

2 ANS:

34 ft

$$16^2 + 30^2 = c^2$$

1156 = c^2 . 16, 30, 34 is a multiple of the 8, 15, 17 triangle.

$$34 = c$$

REF: 010615a

3 ANS:

24

$$2x - 8 = x + 2. \quad AE = 10 + 2 = 12. \quad AC = 2(AE) = 2(12) = 24$$

$$x = 10$$

REF: 011327ge

4 ANS:

16

$$6x + 4 = 2(7x - 6) \quad US = 6(2) + 4 = 16$$

$$6x + 4 = 14x - 12$$

$$16 = 8x$$

$$x = 2$$

REF: 011603ge

5 ANS:

50

Because $ABCD$ is a rectangle, \overline{AB} and \overline{CD} are parallel and \overline{AC} is a transversal. $\angle BAC$ and $\angle ACD$ are equal alternate interior angles. $3x + 4 = x + 28$. $m\angle BAC = 3(12) + 4 = 40$. Since $\angle BAC$ and $\angle CAD$ are complementary, $m\angle CAD = 50$.

REF: 089909a

6 ANS:
40

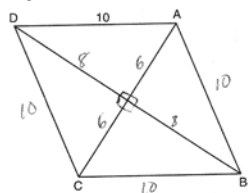
REF: 011112ge

7 ANS:
78

The diagonals of a rhombus are perpendicular. $180 - (90 + 12) = 78$

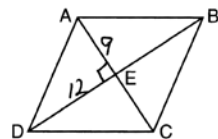
REF: 011204ge

8 ANS:
16



REF: 061414ge

9 ANS:
15



$$\sqrt{9^2 + 12^2} = 15$$

REF: 011505ge

10 ANS:
13

$$\sqrt{5^2 + 12^2} = 13$$

REF: 061116ge

11 ANS:
68

$$\sqrt{8^2 + 15^2} = 17$$

REF: 061326ge

12 ANS:
I, II, and III

REF: 061711geo

13 ANS:
 $\frac{4}{5}$

In an isosceles trapezoid, only one pair of opposite sides is parallel.

REF: 010721a