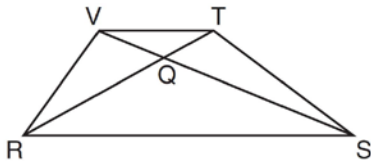


G.CO.C.11: Trapezoids 1b

- 1 If the diagonals of a quadrilateral do *not* bisect each other, then the quadrilateral could be a
- 1) rectangle
 - 2) rhombus
 - 3) square
 - 4) trapezoid

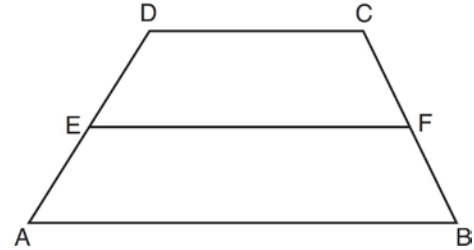
- 2 In trapezoid $RSTV$ with bases \overline{RS} and \overline{VT} , diagonals \overline{RT} and \overline{SV} intersect at Q .



If trapezoid $RSTV$ is *not* isosceles, which triangle is equal in area to $\triangle RSV$?

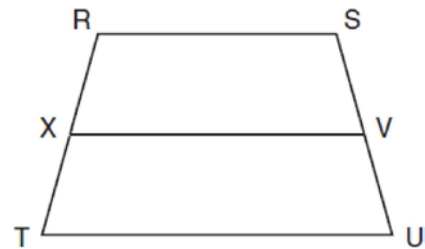
- 3 Isosceles trapezoid $ABCD$ has diagonals \overline{AC} and \overline{BD} . If $AC = 5x + 13$ and $BD = 11x - 5$, what is the value of x ?

- 4 In the diagram below, \overline{EF} is the median of trapezoid $ABCD$.



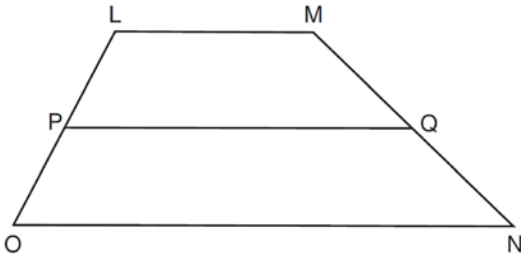
If $AB = 5x - 9$, $DC = x + 3$, and $EF = 2x + 2$, what is the value of x ?

- 5 In the diagram below of trapezoid $RSUT$, $\overline{RS} \parallel \overline{TU}$, X is the midpoint of \overline{RT} , and V is the midpoint of \overline{SU} .



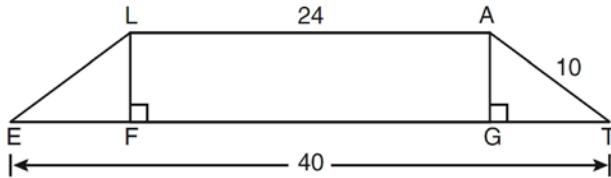
If $RS = 30$ and $XV = 44$, what is the length of \overline{TU} ?

- 6 In trapezoid $LMNO$ below, median \overline{PQ} is drawn.



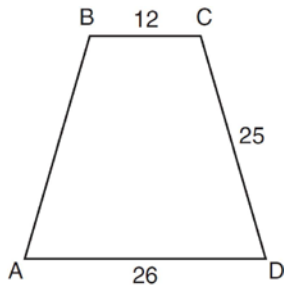
If $LM = x + 7$, $ON = 3x + 11$, and $PQ = 25$, what is the value of x ?

- 7 In the diagram below, $LATE$ is an isosceles trapezoid with $\overline{LE} \cong \overline{AT}$, $LA = 24$, $ET = 40$, and $AT = 10$. Altitudes \overline{LF} and \overline{AG} are drawn.



What is the length of \overline{LF} ?

- 8 In the diagram below of isosceles trapezoid $ABCD$, $AB = CD = 25$, $AD = 26$, and $BC = 12$.



What is the length of an altitude of the trapezoid?

- 9 In isosceles trapezoid $ABCD$, $\overline{AB} \cong \overline{CD}$. If $BC = 20$, $AD = 36$, and $AB = 17$, what is the length of the altitude of the trapezoid?

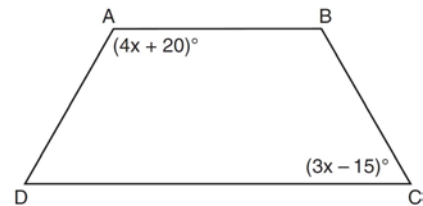
- 10 In the diagram below, \overline{AB} and \overline{CD} are bases of trapezoid $ABCD$.



(Not drawn to scale)

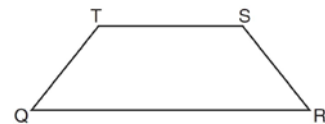
If $m\angle B = 123$ and $m\angle D = 75$, what is $m\angle C$?

- 11 In the diagram of trapezoid $ABCD$ below, $\overline{AB} \parallel \overline{DC}$, $\overline{AD} \cong \overline{BC}$, $m\angle A = 4x + 20$, and $m\angle C = 3x - 15$.



What is $m\angle D$?

- 12 In isosceles trapezoid $QRST$ shown below, \overline{QR} and \overline{TS} are bases.



If $m\angle Q = 5x + 3$ and $m\angle R = 7x - 15$, what is $m\angle Q$?

G.CO.C.11: Trapezoids 1b**Answer Section**

1 ANS: 4 REF: 061008ge

2 ANS:
 $\triangle RST$ Isosceles or not, $\triangle RSV$ and $\triangle RST$ have a common base, and since \overline{RS} and \overline{VT} are bases, congruent altitudes.

REF: 061301ge

3 ANS:

3

The diagonals of an isosceles trapezoid are congruent. $5x + 3 = 11x - 5$.

$$6x = 18$$

$$x = 3$$

REF: fall0801ge

4 ANS:

5

The length of the midsegment of a trapezoid is the average of the lengths of its bases. $\frac{x + 3 + 5x - 9}{2} = 2x + 2$.

$$6x - 6 = 4x + 4$$

$$2x = 10$$

$$x = 5$$

REF: 081221ge

5 ANS:

58

The length of the midsegment of a trapezoid is the average of the lengths of its bases. $\frac{x + 30}{2} = 44$.

$$x + 30 = 88$$

$$x = 58$$

REF: 011001ge

6 ANS:

8

$$\frac{x + 7 + 3x + 11}{2} = 25$$

$$4x + 18 = 50$$

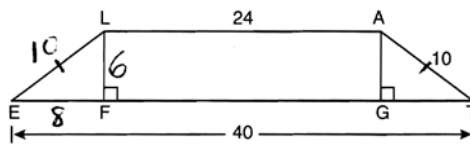
$$4x = 32$$

$$x = 8$$

REF: 011608ge

- 7 ANS:
6

$$\frac{40-24}{2} = 8. \quad \sqrt{10^2 - 8^2} = 6.$$



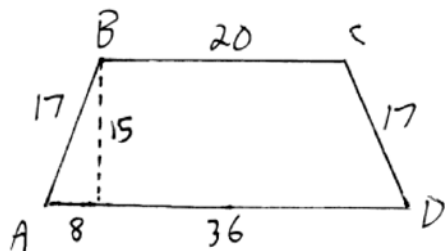
REF: 061204ge

- 8 ANS:
24

$$\sqrt{25^2 - \left(\frac{26-12}{2}\right)^2} = 24$$

REF: 011219ge

- 9 ANS:
15



$$\frac{36-20}{2} = 8. \quad \sqrt{17^2 - 8^2} = 15$$

REF: 061016ge

- 10 ANS:
57
 $180 - 123 = 57$

REF: 061419ge

- 11 ANS:
60

$$2(4x + 20) + 2(3x - 15) = 360. \quad \angle D = 3(25) - 15 = 60$$

$$8x + 40 + 6x - 30 = 360$$

$$14x + 10 = 360$$

$$14x = 350$$

$$x = 25$$

REF: 011321ge

12 ANS:

48

$$5x + 3 = 7x - 15 \quad 5(9) + 3 = 48$$

$$18 = 2x$$

$$9 = x$$

REF: 011515ge