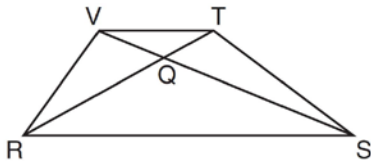


**G.CO.C.11: Trapezoids 1a**

- 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

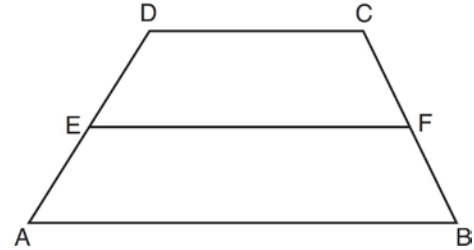
- 2 In trapezoid  $RSTV$  with bases  $\overline{RS}$  and  $\overline{VT}$ , diagonals  $\overline{RT}$  and  $\overline{SV}$  intersect at  $Q$ .



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

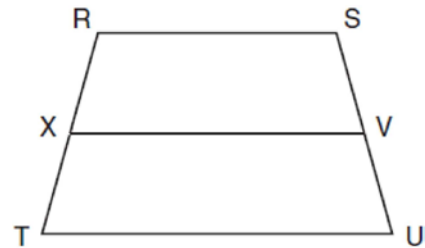
- 1)  $\triangle RQV$
  - 2)  $\triangle RST$
  - 3)  $\triangle RVT$
  - 4)  $\triangle SVT$
- 3 Isosceles trapezoid  $ABCD$  has diagonals  $\overline{AC}$  and  $\overline{BD}$ . If  $AC = 5x + 13$  and  $BD = 11x - 5$ , what is the value of  $x$ ?
- 1) 28
  - 2)  $10\frac{3}{4}$
  - 3) 3
  - 4)  $\frac{1}{2}$

- 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  $x$ ?

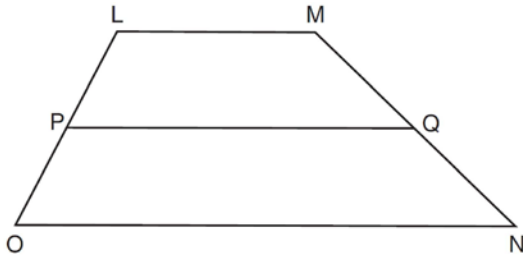
- 1) 5
  - 2) 2
  - 3) 7
  - 4) 8
- 5 In the diagram below of trapezoid  $RSUT$ ,  $\overline{RS} \parallel \overline{TU}$ ,  $X$  is the midpoint of  $\overline{RT}$ , and  $V$  is the midpoint of  $\overline{SU}$ .



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

- 1) 37
- 2) 58
- 3) 74
- 4) 118

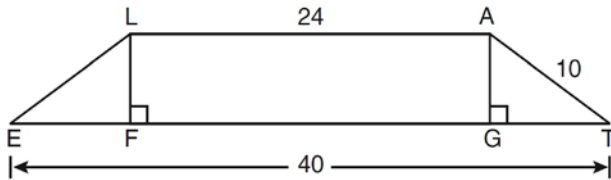
- 6 In trapezoid  $LMNO$  below, median  $\overline{PQ}$  is drawn.



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

- 1) 1.75
- 2) 3.5
- 3) 8
- 4) 17

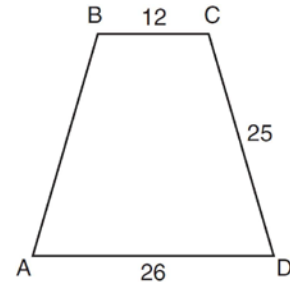
- 7 In the diagram below,  $LATE$  is an isosceles trapezoid with  $\overline{LE} \cong \overline{AT}$ ,  $LA = 24$ ,  $ET = 40$ , and  $AT = 10$ . Altitudes  $\overline{LF}$  and  $\overline{AG}$  are drawn.



What is the length of  $\overline{LF}$ ?

- 1) 6
- 2) 8
- 3) 3
- 4) 4

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



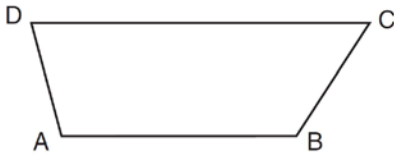
What is the length of an altitude of the trapezoid?

- 1) 7
- 2) 14
- 3) 19
- 4) 24

- 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?

- 1) 10
- 2) 12
- 3) 15
- 4) 16

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

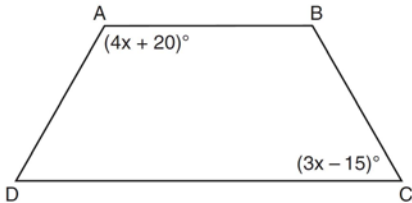


(Not drawn to scale)

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

- 1) 57
- 2) 75
- 3) 105
- 4) 123

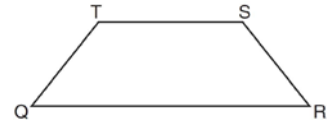
- 11 In the diagram of trapezoid  $ABCD$  below,  $\overline{AB} \parallel \overline{DC}$ ,  $\overline{AD} \cong \overline{BC}$ ,  $m\angle A = 4x + 20$ , and  $m\angle C = 3x - 15$ .



What is  $m\angle D$ ?

- 1) 25
- 2) 35
- 3) 60
- 4) 90

- 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  $m\angle Q$ ?

- 1) 83
- 2) 48
- 3) 16
- 4) 9

## G.CO.C.11: Trapezoids 1a

### Answer Section

1 ANS: 4 REF: 061008ge

2 ANS: 2

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: 1

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: 2

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: 3

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

$$4x + 18 = 50$$

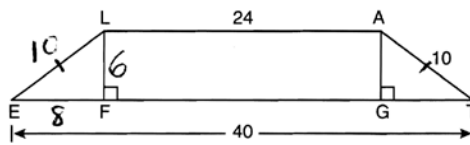
$$4x = 32$$

$$x = 8$$

REF: 011608ge

7 ANS: 1

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



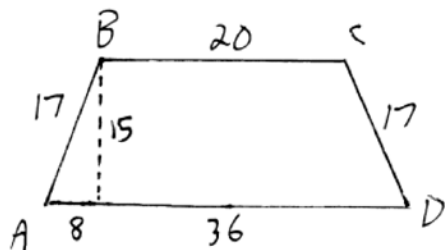
REF: 061204ge

8 ANS: 4

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

REF: 011219ge

9 ANS: 3



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

REF: 061016ge

10 ANS: 1

$$180 - 123 = 57$$

REF: 061419ge

11 ANS: 3

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

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

$$14x + 10 = 360$$

$$14x = 350$$

$$x = 25$$

REF: 011321ge

12 ANS: 2

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

$$18 = 2x$$

$$9 = x$$

REF: 011515ge