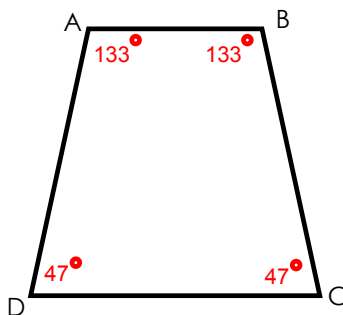


# Independent Practice

In the diagram below of **isosceles** trapezoid ABCD,  $AB \parallel CD$ ,  $m\angle D = 47^\circ$ . Find the measure of all missing angles.

$m\angle A = \underline{133^\circ}$       $m\angle B = \underline{133^\circ}$       $m\angle C = \underline{47^\circ}$

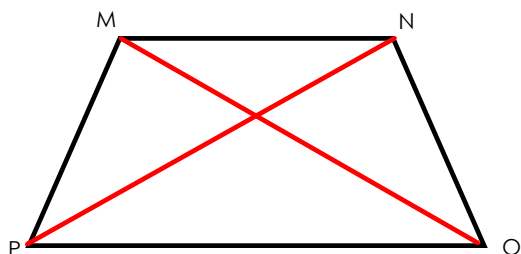


In the diagram below of **isosceles** trapezoid MNOP,  $AB \parallel DC$ , and we know diagonal  $MO = 68$  mm. Draw diagonals  $MO$  and  $NP$  and find the length of  $NP$ .

Property:

**diagonals are congruent**

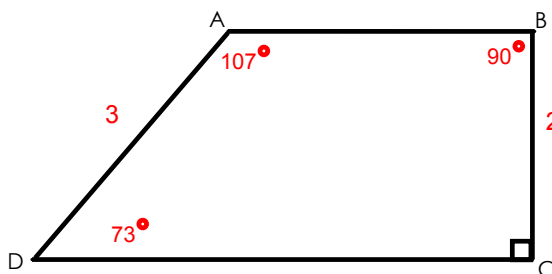
**$NP = 68$**



In the diagram below of trapezoid ABCD,  $AB \parallel CD$ ,  $AD = 3$ ,  $BC = 2$ ,  $m\angle A = 107^\circ$  and  $\angle C$  is a right angle. Find the value of the missing angles.

Is trapezoid ABCD a isosceles trapezoid? How do you know?

**No because the base angles are not congruent.**



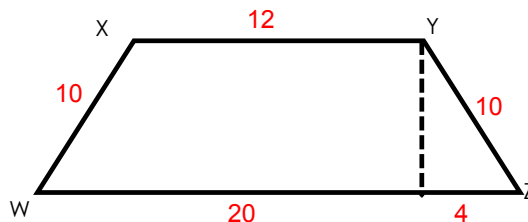
$m\angle B = \underline{90^\circ}$       $m\angle D = \underline{73^\circ}$

In isosceles trapezoid ABCD,  $XW \cong YZ$ . If  $XW = 10$ ,  $XY = 12$ , and  $WZ = 20$ , what is the length of the altitude of the trapezoid?

Step 1: Find the difference in length between the top and bottom base

Step 2: Divide by two

Step 3: Use pythagorean theorem

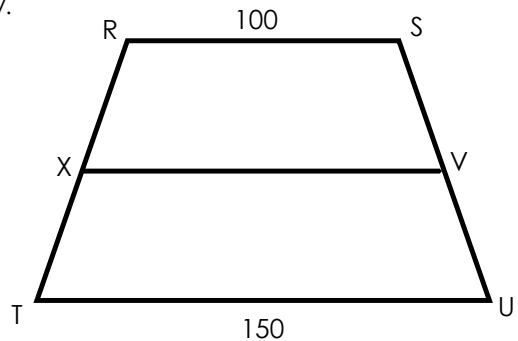


**$\sqrt{84}$**

In the diagram below of trapezoid RSUT,  $RS \parallel TU$ , X is the midpoint of RT, and V is the midpoint of SU. Find the length of XV.

$$\frac{125}{1} = \frac{(100) + (150)}{2}$$

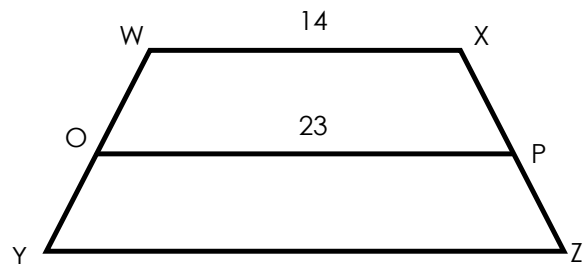
$$XV = 125$$



OP is the median of trapezoid WXZY. What is the length of YZ?

$$\frac{14 + x}{2} = 23$$

$$x = 32$$

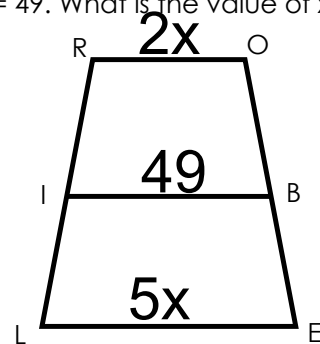


IB is the median of trapezoid ROEL.  $RO = 2x$ ,  $LE = 5x$ , and  $IB = 49$ . What is the value of  $x$ ?

$$\frac{2x + 5x}{2} = 49$$

$$7x = 98$$

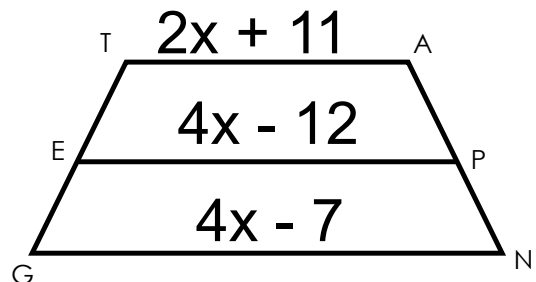
$$x = 14$$



EP is the median of trapezoid TANG.  $TA = 2x + 11$ ,  $GN = 4x - 7$ , and  $EP = 4x - 12$ . What is the length of TA, GN, and EP. (hint: solve for  $x$  and plug in!)

$$\frac{2x + 11 + 4x - 7}{2} = 4x - 12$$

$$x = 13$$



CHALLENGE TIME. STEP UP.

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

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

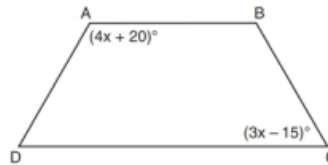
- 1) 28
- 2)  $10\frac{3}{4}$
- 3) 3
- 4)  $\frac{1}{2}$

Draw here:

In isosceles trapezoid  $JKLM$ , leg  $JK = 5x - 10$ , base  $KL = 6x + 2$ , and leg  $LM = 2x + 8$ . Find the value of  $x$ .

- [A]  $-\frac{2}{3}$  [B]  $\frac{3}{2}$  [C] 6 [D] -12

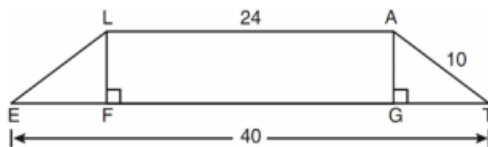
In the diagram of trapezoid  $ABCD$  below,  $AB \parallel DC$ ,  $AD \cong BC$ ,  $m\angle A = 4x + 20$ , and  $m\angle C = 3x - 15$ .



What is  $m\angle D$ ?

$\angle D = 60$

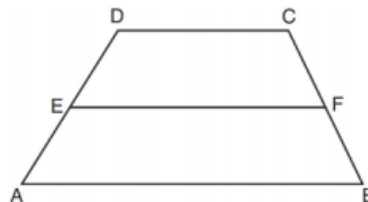
In the diagram below,  $LATE$  is an isosceles trapezoid with  $LE \cong AT$ ,  $LA = 24$ ,  $ET = 40$ , and  $AT = 10$ . Altitudes  $\overline{LF}$  and  $\overline{AG}$  are drawn.



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

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

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