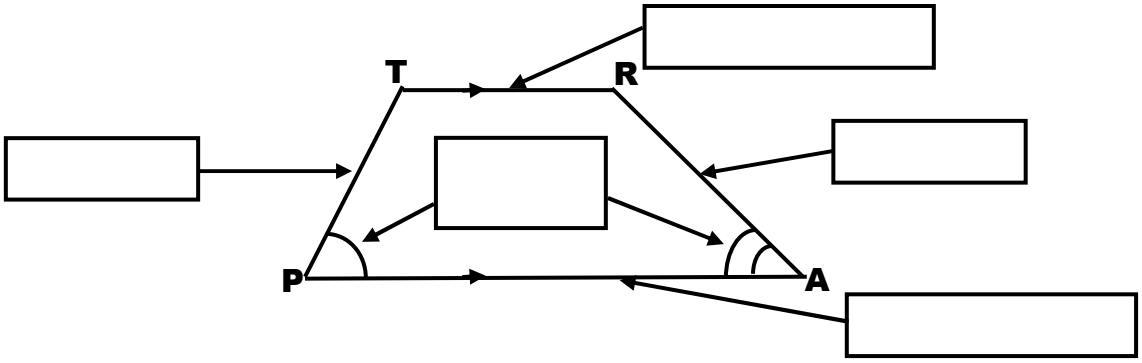
TOPIC 6-4: TRAPEZOIDS

TRAPEZOID:

BASES:

LEGS:

BASE ANGLES:

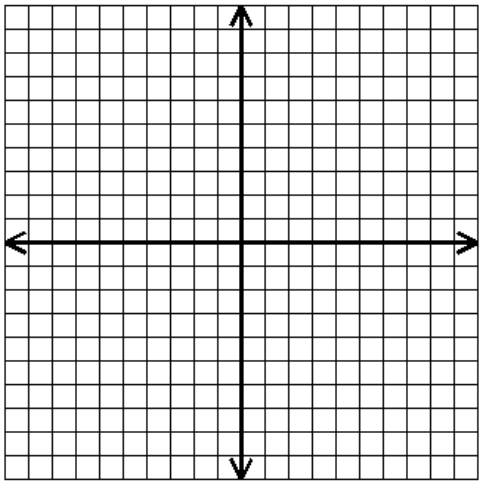


ISOSCELES TRAPEZOID:

The base angels of an isosceles trapezoid are congruent.

The diagonals of an isosceles trapezoid have a special relationship…

Graph the isosceles trapezoid MATH by plotting the points M(0, -2); A(0, 5); T(6, 7); H(6, -4).



Name the diagonals of trapezoid MATH:

_____

Find the length of each diagonal:

$\overline{MT}$: $\overline{AH}$:

What can you say about the length of each diagonal?

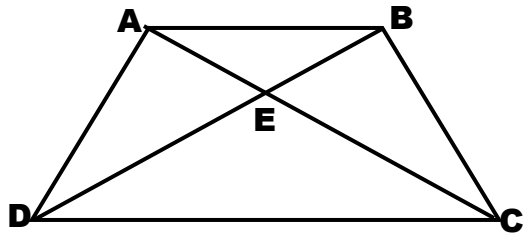
When conclusion can you make?

EXAMPLE 1 ABCD is an isosceles trapezoid. Decide whether each statement is TRUE or FALSE.

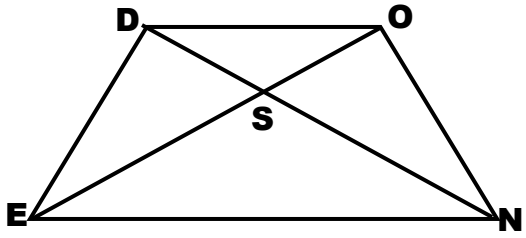
a) AC = BD

b) $\overline{AD} \cong \overline{BC}$

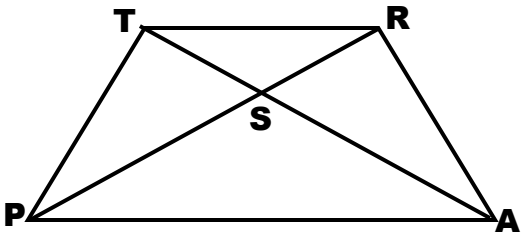
c) $\overline{CA}$ and $\overline{BD}$ bisect each other



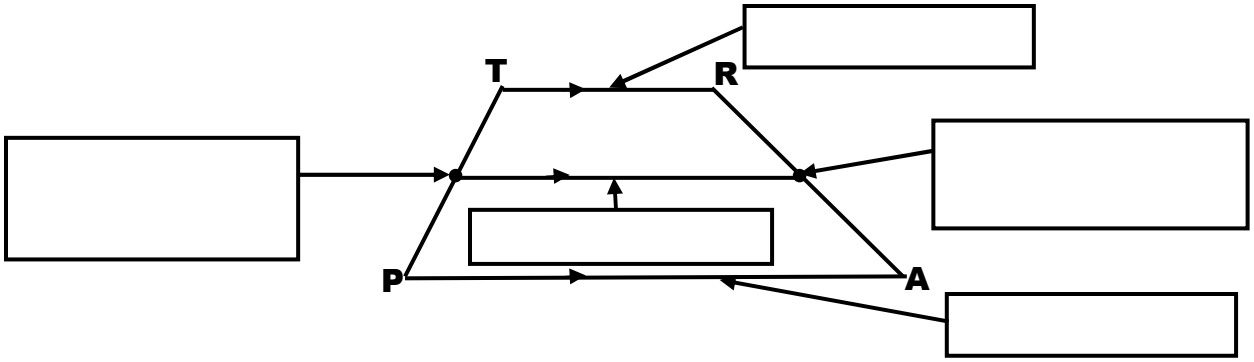
EXAMPLE 2 DONE is an isosceles trapezoid. m∠EDO = 110° and m∠DEN = (15x – 5)°. Find the value of 'x'.



EXAMPLE 3 TRAP is an isosceles trapezoid. PR = 3x – 7 and TA = 20. Find the value of 'x'.

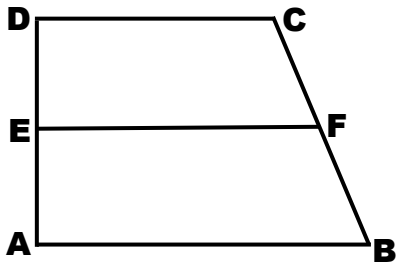


MEDIAN:



MEDIAN = _____

EXAMPLE 4 In trapezoid ABCD, $\overline{EF}$ is a median. Find each of the following.



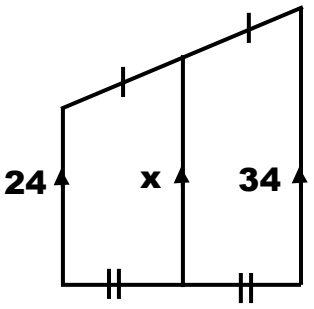
a) AB = 25, DC = 13, EF = _____

b) AE = 11, FB = 8, AD = _____,
BC = _____

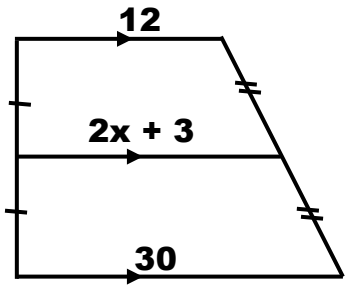
c) AB = 29, EF = 24, DC = _____

d) AB = 7y + 6, EF = 5y – 3,
DC = y – 2, y = _____

EXAMPLE 5 Find the value of 'x' for the trapezoid.



EXAMPLE 6 Find the value of 'x' for the trapezoid.



To summarize, what can we say about all trapezoids?

1)_____

2)_____

In addition to these, what can we say about isosceles trapezoids?

1)_____

2)_____

3)_____