



title

Jan 13-8:27 AM

Yesterday we talked about a **midsegment** of a triangle.

- Connects the midpoints of two sides of a triangle.
- Parallel to the third side of the triangle.
- Half the length of the third side of the triangle.

It also divides the triangle PROPORTIONALLY.

midsegment

Triangle Proportionality Theorem

If a line parallel to one side of a triangle intersects the other two sides, then it divides the two sides proportionally.

Converse of the Triangle Proportionality Theorem

If a line divides two sides of a triangle proportionally, then it is parallel to the third side.

triangle proportionality

Find the value of x .

Use the given information to determine whether $ST \parallel VW$.

Handwritten work:

$$\frac{20}{4x} = \frac{15}{12}$$

$$\frac{4x}{20} = \frac{12}{15}$$

$$240 = 60x$$

$$4 = x$$

$$\frac{30}{10} = \frac{42}{14}$$

$$\frac{3}{1} = \frac{3}{1}$$

$ST \parallel VW$

examples

Theorem

If three parallel lines intersect two transversals, then they divide the transversals proportionally.

Complete the proportion.

$$\frac{UW}{WY} = \frac{VX}{XZ}$$

$$\frac{YZ}{OZ} = \frac{OV}{OV}$$

proportionality thm

Theorem

If a ray bisects an angle of a triangle, then it divides the opposite side into segments whose lengths are proportional to the lengths of the other two sides.

$$\frac{AD}{DC} = \frac{AB}{CB}$$

proportionality thm

Find the value of x .

Handwritten work:

$$\frac{16}{28} = \frac{24}{3x}$$

$$48x = 672$$

$$x = 14$$

$$\frac{10}{x+9} = \frac{12}{18}$$

$$180 = 12x + 108$$

$$72 = 12x$$

$$6 = x$$

examples

Conclusion

1. If a line divides two sides of a triangle proportionally, then it is // to 3rd side.
2. If three parallel lines intersect two transversals, then it divides transversal proportionally.
3. If a ray bisects an angle of a triangle, then it divides opposite side proportionally.
4. Questions????

Jan 7-9:07 AM

Assignment**Proportion and Similar
Triangles Wkst**

Jan 7-9:12 AM