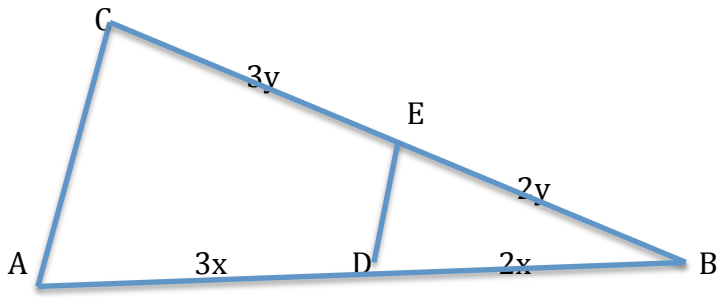
Answer on Question #12153 – Math – Geometry

If D is a point on the side AB of triangle ABC such that AD:DB=3:2 and E is a point on BC such that DE is parallel to AC. FIND THE RATIO OF AREAS OF TRIANGLE ABC AND TRIANGLE BDE.

Solution.

Since DE is parallel to AC, triangles ABC is similar to triangle DBE.



As DE||AC we can write that CE:EB=3:2. Calculate the area of ABC:

$$S_{ABC} = \frac{1}{2} 5x * 5y * \sin B.$$

The area of BDE is

$$S_{BDE} = \frac{1}{2} 2x * 2y * \sin B.$$

So, the ration of areas of triangle ABC and BDE is

$$\frac{S_{ABC}}{S_{BDE}} = \frac{\frac{1}{2} 25xy \sin B}{\frac{1}{2} 4xy \sin B} = \frac{25}{4}.$$

Answer. 25/4