

Solution to Quizz VI  
Math1060-02

**Problem 1.** (4 points) Use the information  $C = 43^\circ$ ,  $a = \frac{4}{9}$ ,  $b = \frac{7}{4}$  and the Law of Cosines to solve the triangle.

we have that

$$c^2 = a^2 + b^2 - 2ab \cos C = \left(\frac{4}{9}\right)^2 + \left(\frac{7}{4}\right)^2 - 2\frac{4}{9}\frac{7}{4} \cos 43^\circ = 2.122,$$

so  $c = 1.456$ . Apply again the Law of Cosine to find the

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = 0.9782$$

and thus  $A = 11.985^\circ$  and at the end  $B = 125.014^\circ$ .

**Problem 2.** (4 points) Use Heron's Area Formula to find the area of the triangle with  $a = 75.4$ ,  $b = 52$ ,  $c = 52$ . First  $p = \frac{a+b+c}{2} = \frac{179.5}{2} = 89.75$ . So  $p - a = 14.25$  and  $p - b = p - c = 37.75$  so that

$$A = \sqrt{89.75 \times 14.25 \times 37.75 \times 37.75} = 1350.02$$

**Problem 3.** (4 points) Find  $\mathbf{u} + \mathbf{v}$ ,  $\mathbf{u} - \mathbf{v}$ ,  $2\mathbf{u} - 3\mathbf{v}$  if  $\mathbf{u} = \langle 2, 3 \rangle$  and  $\mathbf{v} = \langle 4, 0 \rangle$ .

$$\mathbf{u} + \mathbf{v} = \langle 6, 3 \rangle,$$

$$\mathbf{u} - \mathbf{v} = \langle -2, 3 \rangle,$$

$$2\mathbf{u} - 3\mathbf{v} = \langle -8, 6 \rangle.$$