1-5)
From above:
A = 4***i*** + 3***j*** **B** = 5***i*** - 2***j***
Use matrix method:

i	***j***	***k***	***i***	***j***
4	3	0	4	3
5	-2	0	5	-2

Multiply diagonally, positive down and to the right and negative down and to the left:

A x **B** = 3*0***i** + 0*5***j** + 4*(-2)***k** - 4*0***j** - 0*(-2)***i** - 3*5***k** = (-8 -15)***k*** = -23***k***, *i.e.*, into the page.

Now, since **A** and **B** are in the x-y plane, it's fairly easy to use the other definition of the cross product as well:

$|\mathbf{A}| = (4^2 + 3^2)^{1/2} = 5$ and $|\mathbf{B}| = (5^2 + (-2)^2)^{1/2} = 5.39$
$\theta_A = \arctan(3/4) = 36.9^o$ and $\theta_B = \arctan(-2/5) = -21.8^o$ (Don't forget to check the quadrant!)

So, the angle between **A** and **B** is then 58.7^o.

$|\mathbf{A} \times \mathbf{B}| = |\mathbf{A}|\,|\mathbf{B}| \sin\theta_{A,B} = 5*5.39*\sin(58.7^o) = 23.0$
and the RHR (with **A** in QI and **B** in QIIII) gives us that the cross product points in the -z direction.

So, it checks!