1st exercise.

1. $\cos\alpha = \frac{2\sqrt{2}}{3}$, And $\cos^2\alpha + \sin^2\alpha = 1$ (Pythagorean identity)

then, $\sin^2\alpha = 1 - \cos^2\alpha$

$= 1 - \left(\frac{2\sqrt{2}}{3}\right)^2 = 1 - \frac{8}{9} =$

$\sqrt{\sin^2\alpha} = \sqrt{\frac{1}{9}}$

So, $\sin\alpha = \mp\frac{1}{3}$ but α is acute, hence $\sin\alpha > 0$.

$\therefore$ $\sin\alpha = \frac{1}{3}$ $\boxed{\text{Choice A}}$

2. $\vec{AM} + \vec{KA} + \vec{DK} + \vec{BD} + \vec{MB}$ (sum of consecutive vectors)

$= \vec{AM} + \vec{MB} + \vec{BD} + \vec{DK} + \vec{KA}$ (Use Chasles rule)

$= \vec{AA}$

$= \vec{0}$. $\boxed{\text{Choice C}}$

3. $\frac{3x+2}{5} - \frac{2x+1}{3} \leq \frac{x+4}{3}$

$\frac{3x+2}{5} \leq \frac{x+4}{3} + \frac{2x+1}{3}$

$\left(\frac{3x+2}{5} \leq \frac{3x+5}{3}\right)$ $(\times 15)$

$9x + 6 \leq 15x + 25$

$(-6x \leq 19)$ $(\times -1)$

$6x \geq -19$

so $x \geq -\frac{19}{6}$

hence $x \geq -3.1...$

$\therefore$ The negative integers that satisfy the given inequality are $-3, -2, -1$ & 0

$\boxed{\text{Choice B}}$