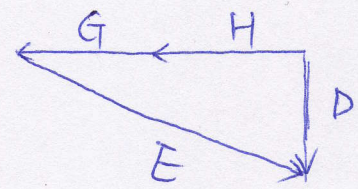
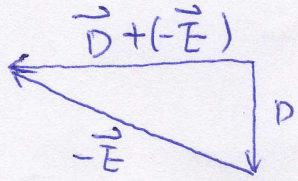
Section 1.2

#4. Solve for x: $x + \vec{H} = \vec{D} - \vec{E}$



$$x = \vec{D} + (-\vec{E}) + (-\vec{H})$$

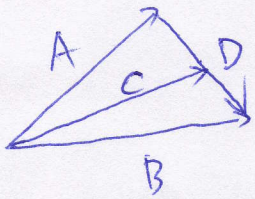


$\therefore \vec{D} + (-\vec{E}) = \vec{H} + \vec{G}$

$$\vec{D} + (-\vec{E}) + (-\vec{H})$$
$$= \vec{H} + \vec{G} + (-\vec{H})$$
$$= \vec{G}$$

Section 1.3.

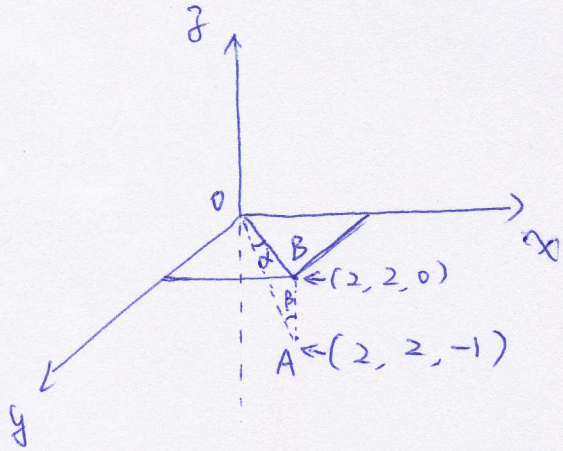
#11.



$\vec{D} = \vec{B} - \vec{A}$, $\vec{C} = \vec{A} + \frac{1}{2}\vec{D} = \vec{A} + \frac{1}{2}(\vec{B} - \vec{A}) = \frac{1}{2}(\vec{A} + \vec{B})$.

Section 1.7

#4.



$\vec{OA}$ is the vector $2i + 2j - k$, and α is the angle we want.

since $|AB| = 1$, $|OA| = \sqrt{2^2 + 2^2 + (-1)^2} = 3$

$\therefore \cos\beta = \frac{|AB|}{|OA|} = \frac{1}{3}$

$\therefore \alpha = 90^\circ - \beta = 90^\circ - \cos^{-1}(\frac{1}{3})$