Practice T/F:

F 1) $\mathbb{A} \times \mathbb{B} = |\mathbb{A}||\mathbb{B}| \sin\theta$ ← need $\hat{e}_\perp$

F 2) $\mathbb{A} \cdot (\mathbb{B} \cdot \mathbb{C}) = (\mathbb{A} \cdot \mathbb{B}) \cdot \mathbb{C}$

F 3) $\theta = \cos\left(\frac{\mathbb{A} \cdot \mathbb{B}}{|\mathbb{A}||\mathbb{B}|}\right)$

T 4) $\langle 1, 0, 2 \rangle$ is perpendicular to $\langle -2, 0, 1 \rangle$

F 5) $\mathbb{A} \times (\mathbb{B} \times \mathbb{C}) = (\mathbb{A} \times \mathbb{B}) \times \mathbb{C}$

T 6) $(3\mathbb{A} \times 2\mathbb{B}) = -6(\mathbb{B} \times \mathbb{A})$

T 7) $\mathbb{A}/|\mathbb{A}|$ is always a unit vector

T 8) Projection of $\mathbb{A}$ in direction $\mathbb{B}$ is $\mathbb{A} \cdot \frac{\mathbb{B}}{|\mathbb{B}|}$

F 9) Area of triangle w/ sides $\mathbb{A}, \mathbb{B}$ is $\frac{1}{2}(\mathbb{A} \times \mathbb{B})$

T 10) $\mathbb{D}$ is perpendicular to all vectors in $\mathbb{R}^3$

F 11) $\hat{\imath} \times \hat{\jmath} = -\hat{k}$

T 12) $\hat{k} \times \hat{\imath} = \hat{\jmath}$

T 13) $\hat{\imath} \cdot \hat{\jmath} = 0$

T 14) $\hat{\jmath} \cdot \hat{\jmath} = 1$

T 15) $\mathbb{A} \times (\mathbb{A} \times \mathbb{B}) \neq 0$ if $\mathbb{A} \neq 0$

F 16) $\mathbb{A} \times \mathbb{A} \neq 0$

$\hat{k}$ 1, $\hat{\jmath}$ 2

$\hat{\imath} \cdot \hat{x} = \delta_{ix}$ ← Kronecker

T 17) $\mathbf{A} \cdot (\mathbf{A} \times \mathbf{B}) = 0$

T 18) $\mathbf{A} \cdot (\mathbf{B} \times \mathbf{C})$ can give a volume

T 19) Volume of cube of side 1 is $\hat{i} \cdot (\hat{j} \times \hat{k})$

F 20) $3x^2 + 3y^2 + 6z^2 + 2x - y + z = 1$ is equation of a sphere in $\mathbb{R}^3$

T 21) Formula for distance between $(1,1,1)$ & $(2,3,4)$ is $d = \sqrt{(1-2)^2 + (1-3)^2 + 3^2}$

F 22) A sphere consists of all points equidistant or closer to a given point

F 23) $\mathbf{A} \cdot \mathbf{B} = |\mathbf{A}||\mathbf{B}| \sin\theta$ } compare

F 24) $\mathbf{A} \times \mathbf{B} = |\mathbf{A}||\mathbf{B}| \sin\theta$ }

F 25) If you carry a 1 N. object 10 m across a level floor, you have done 10 J of work.