Question 1

Not yet answered

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Flag question

If the direction cosines of a vector $\vec{v}$ satisfy

$\cos\alpha = \frac{\sqrt{5}}{4}$, $\cos\beta = \frac{\sqrt{2}}{2}$, $\cos\gamma < 0$, then the vector $\vec{w}$ that has the length 4 and the same direction of $\vec{v}$ is

(A) $\langle\sqrt{5}, \sqrt{2}, -\sqrt{3}\rangle$

(B) $\langle\frac{5}{4}, 2, -\frac{3}{4}\rangle$

(C) $\langle-\frac{1}{4}, \frac{13}{16}, 2\rangle$

(D) $\langle-\sqrt{5}, -2\sqrt{2}, 2\sqrt{3}\rangle$

(E) $\langle\sqrt{5}, 2\sqrt{2}, -\sqrt{3}\rangle$

Question 2

Not yet answered

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The distance between the line $\mathbf{L: \frac{x+1}{2} = y + 2 = z - 3}$ **and the plane** $\mathbf{x - y - z = 4}$

(A) $\frac{6}{\sqrt{3}}$

(B) $\frac{2}{\sqrt{3}}$

(C) $\frac{4}{\sqrt{3}}$

(D) $\frac{8}{\sqrt{3}}$

(E) $\frac{3}{\sqrt{3}}$

Question 3

Not yet answered

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$2x^2 + y^2 + 3z^2 - 2y = 4$, represents

(A) cone

(B) hyperboloid of one sheet

(C) hyperboloid of two sheets

(D) ellipsoid

(E) paraboloid

Question **4**

Not yet answered

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The set of all points that lie between the xz −plane and the vertical plane $y = 4$ and inside the sphere with center $(0,0,-1)$ and radius 6 can be represented by the inequalities

(A) $xz < y < 4$ and and $x^2 + y^2 + z^2 + 2z \leq 36$.

(B) $0 < y < 4$ and $x^2 + y^2 + z^2 - 2z \leq 36$.

(C) $0 < y < 4$ and $x^2 + y^2 + z^2 + 2z = 35$.

(D) $0 < y < 4$ and $x^2 + y^2 + z^2 + 2z < 35$.

(E) $0 \leq y \leq 4$ and $x^2 + y^2 + z^2 - 2z \leq 35$.

Question 5

Not yet answered

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Flag question

If the volume of the parallelepiped, determined by the vectors $\vec{a}$, $\vec{b}$ and $\vec{c}$ is 8 , then $\left|\vec{a}\cdot\left(\vec{b}\times -4\vec{c}\right)\right|$ is

(A) 18

(B) 4

(C) 32

(D) -32

(E) 2

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Question 6

Not yet answered

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Flag question

Find the projection of $\overrightarrow{BC}$ onto $\overrightarrow{AB}$, $proj_{\overrightarrow{AB}}\overrightarrow{BC}$

where $A(1,2), B(4,6), C(5,5)$

(A) $\langle \frac{21}{25}, \frac{28}{25} \rangle$

(B) $\langle -\frac{1}{2}, \frac{1}{2} \rangle$

(C) $-\frac{3}{25}i - \frac{4}{25}j$

(D) $-\frac{1}{5}$

(E) $\langle -\frac{3}{5}, -\frac{4}{5} \rangle$

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Question 7

Not yet answered

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Flag question

An equation of the plane through the point $(-2, 2, 1)$ and parallel to the plane $5x + z = 4 + 2y$, is

(A) $5(x-2) - 2(y+2) + (z+1) = 0$

(B) $5(x+2) + (y-2) - 2(z-1) = 0$

(C) $5(x-2) + 2(y+2) + (z+1) = 0$

(D) $5(x+2) - 2(y-2) + (z-1) = 0$

(E) $5(x+2) - 2(y-2) - (z-1) = 0$

Question 8

Not yet answered

Marked out of 2.50

Flag question

Parametric equations of the line passing through the point $(2, -1, -3)$, and perpendicular to the two lines

L1: $x = 1 + t$, $y = -2$, $z = -t$

L2: $x = 3$, $y = 2 - 2s$, $z = 2 + s$ are

(A) $x = 2 + 2t$, $y = -1 - t$, $z = -3 - 2t$

(B) $x = 2 - 2t$, $y = -1 + t$, $z = -3 + 2t$

(C) $x = 2 - 2t$, $y = -1 + t$, $z = -3 - 2t$

(D) $x = -2 - 2t$, $y = -1 - t$, $z = -3 + 2t$

(E) $x = 2 - 2t$, $y = -1 - t$, $z = -3 - 2t$