Review Answers:

I.

1. $\frac{1}{3\sqrt{2}}$
2. $\frac{2}{3\sqrt{10}}$
3. $\langle 2,1,1\rangle$
4. 0
5. $\frac{1}{\sqrt{6}}\langle 2,1,1\rangle$
6. $\left\langle 1,\frac{5}{2},\frac{-1}{2}\right\rangle$
7. $\langle 1,-2,0\rangle$
8. $\frac{\sqrt{86}}{2}$

II.

1. $\frac{x}{2}=\frac{y+1}{2}=\frac{z-2}{-3}$
2. $\{x=1;\quad y=0;\quad z=2t$
3. $\{x=0;\quad y=-1;\quad z=-3t+2$
4. $-2x-2y+3z=8$
5. $x=2$
6. $\frac{2\sqrt{26}}{3}$
7. $\frac{2\sqrt{26}}{27}$
8. $\frac{7}{3}$
9. $\{x=10t+5;\quad y=1;\quad z=t$
10. $2y-z=2$
11. $\frac{\sqrt{10}}{2}$
12. $\mathbf{v}(1)=\langle 1,0,3\rangle\,;\quad \mathbf{a}(1)=\langle -1,0,2\rangle\,;\quad a_T(1)=\frac{5}{\sqrt{10}};\quad a_N(1)=\frac{5}{\sqrt{10}};\quad \kappa(1)=\frac{1}{2\sqrt{10}}$
13. $\mathbf{N}(2)=\frac{1}{\sqrt{10}}\langle 1,3,0\rangle\,;\quad \mathbf{a}(2)=\langle 3,9,5\rangle\,;\quad a_N(2)=3\sqrt{10};\quad \kappa(2)=\frac{\sqrt{10}}{3};$
14. $\mathbf{T}(2)=\left\langle \frac{2}{\sqrt{5}},\ 0,\ \frac{1}{\sqrt{5}}\right\rangle;\quad \mathbf{a}(2)=\langle 1,1/3,0\rangle\,;\quad a_N(2)=\frac{\sqrt{14}}{3\sqrt{5}};\quad a_T(2)=\frac{2}{\sqrt{5}};\quad \kappa(2)=\frac{\sqrt{14}}{135\sqrt{5}};$
    $\mathbf{N}(2)=\left\langle \frac{3}{\sqrt{70}},\ \frac{\sqrt{5}}{\sqrt{14}},\ \frac{-6}{\sqrt{70}}\right\rangle.$
15. $\sqrt[10]{\frac{1}{99}}$
16. $\frac{1}{2}\ln\frac{1}{18}$