Exam 1 Suggested Exercises Solutions

Section 12.3

24. (a) parallel, (b) neither, (c) orthogonal

26. $b = 0$ or $b = \pm 2$

Section 12.4

12. (a) $|\mathbf{a} \times \mathbf{b}| = 6$, (b) x is positive, y is negative, $z = 0$.

16. $\frac{1}{\sqrt{6}}(\mathbf{i} + \mathbf{j} - 2\mathbf{k})$ and $\frac{1}{\sqrt{6}}(-\mathbf{i} - \mathbf{j} + 2\mathbf{k})$

24. area $= \sqrt{265}$

26. (a) $\mathbf{i} + 2\mathbf{j} + \mathbf{k}$ (b) area $= \sqrt{6}/2$

Section 12.5

4. $\mathbf{r}(t) = 2t\mathbf{i} - t\mathbf{j} + 3t\mathbf{k}$

18. $x = 10 - 5t,\ y = 3 + 3t,\ z = 1 - 4t.$

20. L_1 and L_2 are skew lines.