

Section 12.1: 1 – 47 odd.

Section 12.2: 1 – 17 odd.

Section 12.2: 19 – 43 odd, 51.

Section 12.3: 1 – 7 odd.

Section 12.3: 9 – 37 odd, 38.

Section 12.3: 39 – 53 odd.

Section 12.4: 1 – 43 odd, 47

Section 12.5: 23 – 39 odd, 51, 53, 55, 61, 63, 67.

Section 12.5: 1 – 21 odd, 35, 37, 45, 47, 49, 57, 59, 69, 71, 73.

Section 12.6: 1 – 19 odd, 21 – 28, 29 – 37 odd, 43 – 49 odd.

Section 13.1: 7 – 19 odd, 21 – 27, 41 – 45 odd, 49.

Section 13.1: 1 – 6.

Section 13.2: 9 – 15 odd, 47, 48.

Section 13.2: 1 – 8, 17 – 27 odd.

Section 13.2: 35 – 42.

Section 13.3: 1 – 6, 13 – 16.

Section 13.3: 21 – 31 odd, 42, 43, 45.

Section 13.3: 17 – 20, 47, 48, 49, 55.

Section 13.4: 3 – 31 odd (omit 17), 37 – 41 odd.

Section 14.1: 1 – 31 odd, 61 – 66.

Section 14.2: 1, 5 – 21 odd, 25, 29 – 37 odd.

Section 14.3: 15 – 71 odd, 103.

Section 14.7: 5 – 19 odd.

Section 14.7: 31 – 37 odd, 41 – 59 odd.

Section 14.4: 1 – 5 odd, 17 – 41 odd.

Section 14.4: 1 – 6, 11 – 16, 43, 44.

Section 14.5: 1 – 47 odd.

Section 14.6: 5 – 35 odd.

Section 14.6: 39 – 45 odd, 49 – 63 odd.

Section 14.8: 3 – 45 odd.

Section 15.1: 1 – 5.

Section 15.1: 15 – 43 odd.

Section 15.2: 1 – 16, 17 – 31 odd, 35, 37, 45 – 55 odd.

Section 15.3: 1 – 6, 7 – 35 odd.

Section 15.7: 1 – 13.

Section 15.8: 1 – 16.

Section 15.6: 1 – 35 odd.

Section 15.7: 17 – 23 odd, 29.

Section 15.8: 21 – 29 odd, 31, 43.

Section 16.1: 1 – 9 odd, 15 – 18, 21, 23, 25, 29 – 33.

Section 16.2: 1 – 15 odd, 19, 21.

Section 16.3: 3 – 23 odd, 31, 33, 35.

Section 16.4: 1 – 13 odd, 17, 19.

Section 16.5: 1 – 7 odd, 13 – 21 odd.

Section 16.6: 33, 35, 39 – 49 odd.

Section 16.7: 5 – 15 odd, 21, 23, 25.

Section 13.3: 19.

$$\mathbf{r}(t) = \langle \sqrt{2}t, e^t, e^{-t} \rangle$$

$$\mathbf{r}'(t) = \langle \sqrt{2}, e^t, -e^{-t} \rangle$$

$$\|\mathbf{r}'(t)\| = \sqrt{2 + e^{2t} + e^{-2t}}$$

$$\|\mathbf{r}'(t)\| = \sqrt{(e^t + e^{-t})^2}$$

$$\|\mathbf{r}'(t)\| = e^t + e^{-t}$$

$$\|\mathbf{r}'(t)\| = \frac{e^{2t} + 1}{e^t}$$

$$\mathbf{T}(t) = \frac{1}{\|\mathbf{r}'(t)\|} \mathbf{r}'(t)$$

$$\mathbf{T}(t) = \frac{e^t}{e^{2t} + 1} \langle \sqrt{2}, e^t, -e^{-t} \rangle$$

$$\mathbf{T}(t) = \frac{1}{e^{2t} + 1} \langle \sqrt{2}e^t, e^{2t}, -1 \rangle$$

$$\mathbf{T}(t) = \left\langle \frac{\sqrt{2}e^t}{e^{2t} + 1}, \frac{e^{2t}}{e^{2t} + 1}, \frac{-1}{e^{2t} + 1} \right\rangle$$

$$\mathbf{T}'(t) = \left\langle \frac{\sqrt{2}e^t(e^{2t} + 1) - \sqrt{2}e^t(2e^{2t})}{(e^{2t} + 1)^2}, \frac{2e^{2t}(e^{2t} + 1) - e^{2t}(2e^{2t})}{(e^{2t} + 1)^2}, \frac{2e^{2t}}{(e^{2t} + 1)^2} \right\rangle$$

$$\mathbf{T}'(t) = \left\langle \frac{\sqrt{2}e^t(1 - e^{2t})}{(e^{2t} + 1)^2}, \frac{2e^{2t}}{(e^{2t} + 1)^2}, \frac{2e^{2t}}{(e^{2t} + 1)^2} \right\rangle$$

$$\mathbf{T}'(t) = \frac{2e^{2t}}{(e^{2t} + 1)^2} \left\langle \frac{1 - e^{2t}}{\sqrt{2}e^t}, 1, 1 \right\rangle$$

$$\mathbf{T}'(t) = \frac{2e^{2t}}{(e^{2t} + 1)^2} \left\langle \frac{e^{-t} - e^t}{\sqrt{2}}, 1, 1 \right\rangle$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \sqrt{\left(\frac{e^{-t} - e^t}{\sqrt{2}}\right)^2 + 1 + 1}$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \sqrt{\frac{(e^{-t} - e^t)^2}{2} + 2}$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \sqrt{\frac{(e^{-t} - e^t)^2 + 4}{2}}$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \sqrt{\frac{e^{-2t} - 2 + e^{2t} + 4}{2}}$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \sqrt{\frac{e^{-2t} + 2 + e^{2t}}{2}}$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \sqrt{\frac{(e^t + e^{-t})^2}{2}}$$

$$\|\mathbf{T}'(t)\| = \frac{2e^{2t}}{(e^{2t} + 1)^2} \cdot \frac{e^t + e^{-t}}{\sqrt{2}}$$

$$\|\mathbf{T}'(t)\| = \frac{\sqrt{2}e^{2t}}{(e^{2t} + 1)^2} \cdot \frac{e^{2t} + 1}{e^t}$$

$$\|\mathbf{T}'(t)\| = \frac{\sqrt{2}e^t}{e^{2t} + 1}$$

$$\mathbf{N}(t) = \frac{1}{\|\mathbf{T}'(t)\|} \mathbf{T}'(t)$$

$$\mathbf{N}(t) = \frac{e^{2t} + 1}{\sqrt{2}e^t} \cdot \frac{2e^{2t}}{(e^{2t} + 1)^2} \left\langle \frac{1 - e^{2t}}{\sqrt{2}e^t}, 1, 1 \right\rangle$$

$$\mathbf{N}(t) = \frac{\sqrt{2}e^t}{e^{2t} + 1} \left\langle \frac{1 - e^{2t}}{\sqrt{2}e^t}, 1, 1 \right\rangle$$

$$\mathbf{N}(t) = \frac{1}{e^{2t} + 1} \langle 1 - e^{2t}, \sqrt{2}e^t, \sqrt{2}e^t \rangle$$