

Elementary Engineering Mathematics

Exercises #4 Answers

1. $\vec{F} \approx -177\vec{i} + 177\vec{j}$ (lb)
2. $\vec{F} \approx 57.4\vec{i} + 81.9\vec{j}$ (lb)
3. $|\vec{F}| \approx 158$ (lb), $\theta \approx 252$ (deg) ≈ 4.39 (rad)
4. $|\vec{F}| \approx 128$ (lb), $\theta \approx -51.3$ (deg) ≈ -0.896 (rad)
5.
 - a) $\vec{F} \approx -14\vec{i} + 138\vec{j}$ (lb)
 - b) $|\vec{F}| \approx 138$ (lb)
 - c) $\theta \approx 95.8$ (deg) ≈ 1.67 (rad)
 - d) $\vec{n} \approx -0.101\vec{i} + 0.995\vec{j}$
6.
 - a) $\theta \approx 64.9$ (deg) ≈ 1.13 (rad)
 - b) $\vec{F}_{\parallel} \approx 57.6\vec{i} + 43.2\vec{j}$ (lb)
 - c) $\vec{F}_{\perp} \approx 92.4\vec{i} - 123\vec{j}$ (lb)
7.
 - a) $\theta \approx 46$ (deg) ≈ 0.802 (rad)
 - b) $\vec{F}_{\parallel} \approx 124\vec{i} + 71.7\vec{j}$ (lb)
 - c) $\vec{F}_{\perp} \approx -74.1\vec{i} + 128\vec{j}$ (lb)
8. $M_B \approx 530\vec{k}$ (ft-lb), $d \approx 3.12$ (ft)
9. $M_B \approx -1850\vec{k}$ (ft-lb), $d \approx 8.97$ (ft)
10.
 - a) $\vec{W} \approx -173\vec{i} - 100\vec{j}$ (lb), $\vec{P} \approx 50\vec{i} - 86.6\vec{j}$ (lb)
 - b) $\vec{f} \approx 123\vec{i}$ (lb), $\vec{N} \approx 187\vec{j}$ (lb)