



National University of Technology, Islamabad  
Quiz-I (Calculus II), Spring 2019  
Solution Key

---

$$\text{Q1. } \left| \vec{\text{PQ}} \times \mathbf{F} \right| = \left| \vec{\text{PQ}} \right| |\mathbf{F}| \sin(60^\circ) = \frac{2}{3} \cdot 30 \cdot \frac{\sqrt{3}}{2} \text{ ft} \cdot \text{lb} = 10\sqrt{3} \text{ ft} \cdot \text{lb}$$

$$\left| \vec{\text{PQ}} \times \mathbf{F} \right| = \left| \vec{\text{PQ}} \right| |\mathbf{F}| \sin(135^\circ) = \frac{2}{3} \cdot 30 \cdot \frac{\sqrt{2}}{2} \text{ ft} \cdot \text{lb} = 10\sqrt{2} \text{ ft} \cdot \text{lb}$$