Practice Problem Set 8: Engineering Mechanics (NMEC101)
Answers

1. $(\boldsymbol{a}) v_{max} = 1.92 \frac{m}{s}, (\boldsymbol{b})\ x = \ 0.402\ m, 0.098\ m$

2. $k = 3.84\ m^{-2}$

3. $(\boldsymbol{a}) a_A = -50.83 \frac{mm}{s^2}, a_B = 25.42 \frac{mm}{s^2}, (\boldsymbol{b}) v_B = 152.52 \frac{mm}{s}, x_B = 457.56\ mm$

4. $(\boldsymbol{a})\ \overrightarrow{v_A} = 348.89\ \hat{\imath} + 206.57\ \hat{\jmath}\ \frac{km}{hr}, (\boldsymbol{b}) \overrightarrow{v_W} = -68.8\ \hat{\imath} - 33.43\ \hat{\jmath}\ \frac{km}{hr}$

5. $(\boldsymbol{a})\ a_B = 52.51 \frac{mm}{s^2}\ , (\boldsymbol{b})\ v_B = 157.53 \frac{mm}{s}$

6. $(\boldsymbol{a})\ \overrightarrow{v_{B/A}} = 56.82\ \hat{\imath} - 75.12\ \hat{\jmath}\ \frac{m}{s}, (\boldsymbol{b}) \overrightarrow{a_{B/A}} = 8.31\ \hat{\imath} + 12.07\ \hat{\jmath}\ \frac{mm}{s^2}$

7. $v_{avg} = 306 \frac{mm}{s}$