

0.1 Homework 01 - Forces + Newton's Laws

9.

$$x''(0.7) = -16.8$$

$$y''(0.7) = -18$$

a)

$$a = \sqrt{16.8^2 + 18^2} = 24.62$$

$$ma = (0.340)(24.62) = \boxed{8.37\text{N}}$$

$$\begin{aligned} a_y(0.7) &= \frac{d}{dy} v_y(0.7) = \frac{d}{dy} 25t + 7t - 9t^2 \Big|_{t=0.7} \\ &= 19.4\text{m/s}^2 \end{aligned}$$

a) $\boxed{0.340 \cdot \sqrt{3.88^2 + 19.4^2} = 6.73\text{N}}$

b)

13.

17.

26.

27.

41.

44.

54.