

Solution

$$1. \quad TH = \frac{WIP}{CT} = \frac{360}{9} = 40 \text{ graduates}$$

$$2. \quad TH = \frac{WIP}{CT} = \frac{325.7}{78 + \frac{7}{12}} = 4.14 \text{ million babies}$$

$$3. \quad TH = r = \frac{r_d}{y} [y + \gamma(1 - y)] = \frac{24}{0.8} [0.8 + 1(1 - 0.8)] = 30(1.0) = 30 \text{ units/hr}$$

$$WIP = TH \cdot CT = 30(12) = 360 \text{ units}$$

$$TH = r_a [y + \gamma(1 - y)] = \frac{WIP}{CT} \Rightarrow$$

$$4. \quad r_a = \frac{WIP}{CT [y + \gamma(1 - y)]} = \frac{24}{5 [0.75 + 0.2(1 - 0.75)]} = \frac{24}{4} = 6 \text{ new Ph.D. students each year}$$

$$5. \quad WIP = TH \cdot CT = \left[\left(\frac{1,091,887}{11(16)} \right) \right] (4) \Rightarrow \lceil WIP(1.5) \rceil = 12,408 \text{ Parking Spaces}$$