Practice 10-2, Example Exercises

1. $\angle KML \cong \angle PMN$ because vertical angles are congruent. $\angle K \cong \angle P$ (Given). Therefore $\triangle KML \sim \triangle PMN$ by the AA $\sim$ Postulate. **2.** Since $\overline{AB} \parallel \overline{DE}$, alternate interior angles are $\cong$. So $\angle BAC \cong \angle DEC$ and $\angle ABC \cong \angle EDC$. Then $\triangle ABC \sim \triangle EDC$ by the AA $\sim$ Postulate. **3.** $\angle Y \cong \angle S$ since all right angles are $\cong$. $\angle Z \cong \angle R$ (Given). Therefore $\triangle ZYX \sim \triangle RST$ by the AA $\sim$ Postulate. **4.** $\frac{28}{3}$ **5.** $\frac{50}{7}$ **6.** 8 **7.** 12 **8.** $\frac{55}{6}$ **9.** $\frac{16}{5}$ **10.** $\angle EAD \cong \angle CAB$ because vertical angles are $\cong$. Then, since $\frac{EA}{CA} = \frac{7}{10.5} = \frac{2}{3}$ and $\frac{DA}{BA} = \frac{6}{9} = \frac{2}{3}$, $\triangle EAD \sim \triangle CAB$ by the SAS $\sim$ Theorem; $x = 6$.

11. Since $\frac{QR}{MN} = \frac{RM}{NP} = \frac{MQ}{PM} = \frac{1}{2}$, $\triangle QRM \sim \triangle MNP$ by the SSS $\sim$ Theorem; $x = 90$. **12.** Since $\frac{AB}{XY} = \frac{BC}{YZ} = \frac{3}{2}$ and $\angle B \cong \angle Y$ (Given), $\triangle ABC \sim \triangle XYZ$ by the SAS $\sim$ Theorem; $x = \frac{10}{3}$.