

$$1. \quad a.) \quad \frac{12}{21} \cdot \frac{15^5}{16^8} = \underline{\underline{\frac{5}{8}}}$$

$$b.) \quad \frac{28}{48} \cdot \frac{15^2}{27^3} = \underline{\underline{\frac{4}{27}}}$$

$$c.) \quad \frac{12}{25} \cdot \frac{8^1}{24^1} \cdot \frac{4}{8^1} = \underline{\underline{\frac{4}{5}}}$$

$$d.) \quad \frac{28}{8} \cdot \frac{9^3}{4^1} = \underline{\underline{6}}$$

$$2. \quad \frac{2^1}{4^1} \cdot \frac{2^1}{8^1} \cdot \frac{4^1}{7^1} \cdot \frac{1}{8^1} \cdot \frac{6^1}{8^1} \cdot \frac{7^1}{10^1} \cdot \frac{8^1}{11^1} \cdot \frac{9^1}{12^1} = \underline{\underline{\frac{1}{55}}}$$

$$3. \quad \frac{12}{3} \cdot \frac{5}{8^1} = \underline{\underline{\frac{5}{12}}}$$

$$4. \quad a.) \quad \frac{2}{3} : \frac{4}{9} = \frac{12}{21} \cdot \frac{9^3}{4^1} = \underline{\underline{\frac{3}{2}}}$$

$$b.) \quad \frac{5}{2} : \frac{15}{16} = \frac{8}{21} \cdot \frac{16^8}{27^3} = \underline{\underline{\frac{8}{3}}}$$

$$c.) \quad 1\frac{1}{2} : 2\frac{2}{3} = \frac{3}{2} : \frac{8}{3} = \frac{3}{2} \cdot \frac{3}{8} = \underline{\underline{\frac{9}{16}}}$$

$$d.) \quad 5 : \frac{5}{8} = \frac{8}{7} \cdot \frac{8}{5^1} = \underline{\underline{8}}$$

$$5. \quad a.) \quad \left(\frac{2}{9} - \frac{2}{75}\right) \cdot \frac{1}{2} + \frac{3}{8} : \frac{9}{10} =$$

$$\left(\frac{10}{45} - \frac{9}{45}\right) \cdot \frac{1}{2} + \frac{12}{8} \cdot \frac{10^5}{9^1} =$$

$$\frac{1}{45} \cdot \frac{1}{2} + \frac{5}{12} =$$

$$\frac{1}{90} + \frac{5}{12} =$$

$$\frac{2}{180} + \frac{75}{180} = \underline{\underline{\frac{77}{180}}}$$

$$\begin{aligned}
 \text{b.) } \frac{1}{8} &= \frac{1}{8} : \left(\frac{1}{8} \cdot \frac{1}{8} \right) = \\
 \frac{1}{8} &= \frac{1}{8} : \frac{25}{64} = \\
 \frac{1}{8} &= \frac{1}{8} \cdot \frac{64}{25} = \\
 \frac{1}{8} &= \frac{8}{25} = \\
 \frac{25}{40} &= \frac{64}{40} = \underline{\underline{\frac{39}{40}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{6. a.) } x &: 1 \frac{4}{5} = \frac{2}{4} \\
 \Rightarrow x &= 1 \frac{4}{5} \cdot \frac{2}{4} = \frac{9}{5} \cdot \frac{3}{4} = \underline{\underline{\frac{27}{20}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{b.) } \frac{2}{7} : x &= 3 \\
 \Rightarrow x &= \frac{2}{7} : 3 = \frac{2}{7} : \frac{3}{1} = \frac{2}{7} \cdot \frac{1}{3} = \underline{\underline{\frac{2}{21}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{7. } \frac{8}{75} \cdot x &= \frac{15}{8} \\
 \Rightarrow x &= \frac{15}{8} : \frac{8}{75} = \frac{15}{8} \cdot \frac{75}{8} = \underline{\underline{\frac{225}{64}}}
 \end{aligned}$$