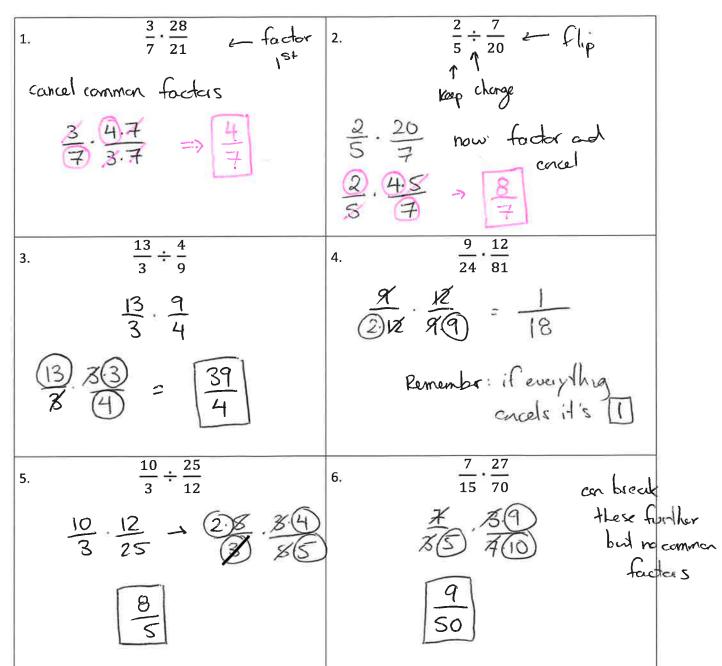## Extra Practice – Section 1.2 – Multiply/Divide Fractions

- This is a process, we require certain steps to be able to accurately operate with the fraction
- Remember that common factors play an important role
- When multiplying fractions, common factors cancel out (because they divide to 1)

Complete the following, do not be satisfied until you have a firm understanding of concepts

Multiply or divide the following fractions, leave all answers in simplified form

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1. $\dfrac{3}{7} \cdot \dfrac{28}{21}$ ← factor 1st

cancel common factors

$\dfrac{3}{7} \cdot \dfrac{\cancel{4} \cdot \cancel{7}}{\cancel{3} \cdot \cancel{7}} \Rightarrow \boxed{\dfrac{4}{7}}$

2. $\dfrac{2}{5} \div \dfrac{7}{20}$ ← flip

keep change

$\dfrac{2}{5} \cdot \dfrac{20}{7}$ now factor and cancel

$\dfrac{2}{\cancel{5}} \cdot \dfrac{4 \cdot \cancel{5}}{7} \Rightarrow \boxed{\dfrac{8}{7}}$

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3. $\dfrac{13}{3} \div \dfrac{4}{9}$

$\dfrac{13}{3} \cdot \dfrac{9}{4}$

$\dfrac{13}{\cancel{3}} \cdot \dfrac{\cancel{3} \cdot 3}{4} = \boxed{\dfrac{39}{4}}$

4. $\dfrac{9}{24} \cdot \dfrac{12}{81}$

$\dfrac{\cancel{9}}{2 \cdot \cancel{12}} \cdot \dfrac{\cancel{12}}{\cancel{9} \cdot 9} = \dfrac{1}{18}$

Remember: if everything cancels it's $\boxed{1}$

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5. $\dfrac{10}{3} \div \dfrac{25}{12}$

$\dfrac{10}{3} \cdot \dfrac{12}{25} \rightarrow \dfrac{2 \cdot \cancel{5}}{\cancel{3}} \cdot \dfrac{\cancel{3} \cdot 4}{\cancel{5} \cdot 5}$

$\boxed{\dfrac{8}{5}}$

6. $\dfrac{7}{15} \cdot \dfrac{27}{70}$

$\dfrac{\cancel{7}}{\cancel{5}(5)} \cdot \dfrac{\cancel{3} \cdot 9}{\cancel{7}(10)}$

can break these further but no common factors

$\boxed{\dfrac{9}{50}}$

7. $\quad 4\frac{2}{3} \cdot 2\frac{5}{8}$

$$\frac{14}{3} \cdot \frac{21}{8}$$

$$\frac{2(7)}{3} \cdot \frac{3(7)}{2 \cdot 4} \qquad \boxed{\frac{49}{4}}$$

8. $\quad 1\frac{6}{7} \div \frac{26}{11}$

$$\frac{13}{7} \cdot \frac{11}{26}$$

$$\frac{13}{7} \cdot \frac{11}{2 \cdot 13} \qquad \boxed{\frac{11}{14}}$$

9. $\quad -2\frac{3}{7} \cdot \frac{14}{170}$

$$-\frac{17}{7} \cdot \frac{2 \cdot 7}{17 \cdot 10}$$

$$-\frac{2}{10} \rightarrow \boxed{-\frac{1}{5}}$$

10. $\quad \frac{20}{40} \cdot \frac{13}{26}$

$$\frac{20}{2 \cdot 20} \cdot \frac{13}{2 \cdot 13}$$

$$\boxed{\frac{1}{4}}$$

11. $\quad 3\frac{1}{9} \div \frac{12}{7}$

$$\frac{28}{9} \cdot \frac{7}{12}$$

$$\frac{2 \cdot 14}{3 \cdot 3} \cdot \frac{7}{2 \cdot 6}$$

$$\frac{2(7)}{3(3)} \cdot \frac{(7)}{2(3)} \qquad \boxed{\frac{49}{27}}$$

12. $\quad \frac{2}{3} \div \frac{4}{9} \cdot \frac{5}{6} \div 2\frac{1}{2}$

$$\frac{2}{3} \cdot \frac{9}{4} \cdot \frac{5}{6} \cdot \frac{2}{5}$$

$$\frac{2}{3} \cdot \frac{3 \cdot 3}{2 \cdot 2} \cdot \frac{5}{2 \cdot 3} \cdot \frac{2}{5}$$

$$\boxed{\frac{1}{2}}$$

13.

$$2\frac{2}{3} \div \frac{2}{9}$$

$$\frac{8}{3} \cdot \frac{9}{2}$$

$$\frac{2\overset{4}{\cancel{8}}}{3} \cdot \frac{3\overset{3}{\cancel{9}}}{2} \qquad \boxed{12}$$

14.

$$1\frac{1}{3} \div \frac{2}{6} \cdot 3\frac{5}{15}$$

$$\frac{4}{3} \cdot \frac{6}{2} \cdot \frac{50}{15}$$

$$\frac{2\overset{2}{\cancel{4}}}{3} \cdot \frac{2\overset{3}{\cancel{6}}}{2} \cdot \frac{2\overset{5}{\cancel{50}}}{\underset{3}{\cancel{15}}\overset{5}{}}$$

$$\boxed{\dfrac{40}{3}}$$

15.

$$2\frac{2}{3} \cdot \frac{15}{16} \cdot 1\frac{4}{5} \div 2\frac{1}{2}$$

$$\frac{8}{3} \cdot \frac{3 \cdot 5}{2 \cdot 8} \cdot \frac{9}{5} \div \frac{5}{2}$$

$$\frac{\cancel{8}}{3} \cdot \frac{3 \cdot 5}{2 \cdot 8} \cdot \frac{\overset{3}{\cancel{9}}\,\cancel{3}}{5} \cdot \frac{2}{\cancel{5}}$$

$$\boxed{\dfrac{9}{5}}$$

16.

$$\frac{12}{20} \cdot \frac{15}{22} \cdot \frac{55}{66} \div 1\frac{1}{2}$$

$$\frac{3 \cdot 4}{4 \cdot 5} \cdot \frac{3 \cdot 5}{2 \cdot 11} \cdot \frac{5 \cdot 11}{6 \cdot 11} \div \frac{3}{2}$$

$$\frac{3 \cdot 4}{4 \cdot 5} \cdot \frac{3 \cdot 5}{2 \cdot 11} \cdot \frac{5 \cdot 11}{2 \cdot 3 \cdot 11} \cdot \frac{2}{3}$$

$$\boxed{\dfrac{5}{22}}$$