

M8 - 6.2 - Multiplying/Cross Cancelling/Dividing Fractions Notes

$$\frac{2}{3} \times \frac{4}{5} =$$

$$\frac{2 \times 4}{3 \times 5} = \frac{8}{15}$$

Multiply tops: $2 \times 4 = 8$
 Multiply bottoms: $3 \times 5 = 15$

$$\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$$

To multiply fractions just multiply tops and multiply bottoms.

$$2 \times \frac{3}{5} = \frac{2}{1} \times \frac{3}{5} = \frac{6}{5}$$

$$a \times \frac{b}{c} = \frac{a}{1} \times \frac{b}{c} = \frac{ab}{c}$$

Cross Cancelling

$$\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$$

OR

$$\frac{1}{\cancel{2}} \times \frac{\cancel{2}}{3} = \frac{1}{3}$$

Cross a 2 off from
the top and bottom

$$\frac{1}{4} \times \frac{2}{3} = \frac{2}{12} = \frac{1}{6}$$

$$\frac{1}{4} \times \frac{2}{\cancel{3}} = \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$\frac{2}{4} = \frac{1}{2}$$

$$\frac{1}{2} \div \frac{4}{7} =$$

$$\frac{1}{2} \times \frac{7}{4} =$$

$$\frac{1 \times 7}{2 \times 4} = \frac{7}{8}$$

Flip second fraction, change to multiplication.

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$$

To divide fractions just flip the second fraction, and change divided by to multiplication and follow steps above.

$$\frac{\left(\frac{1}{2}\right)}{\left(\frac{4}{7}\right)} = \frac{1}{2} \div \frac{4}{7} = \frac{1}{2} \times \frac{7}{4} = \frac{7}{8}$$

$$\frac{\left(\frac{a}{b}\right)}{\left(\frac{c}{d}\right)} = \frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$$

$$\frac{3}{\left(\frac{5}{7}\right)} = 3 \div \frac{5}{7} = 3 \times \frac{7}{5} = \frac{21}{5}$$

$$\frac{a}{\left(\frac{b}{c}\right)} = a \div \frac{b}{c} = a \times \frac{c}{b} = \frac{ac}{b}$$

$$\frac{\left(\frac{2}{3}\right)}{5} = \frac{2}{3} \div 5 = \frac{2}{3} \div \frac{5}{1} = \frac{2}{3} \times \frac{1}{5} = \frac{2}{15}$$

$$\frac{\left(\frac{a}{b}\right)}{c} = \frac{a}{b} \div c = \frac{a}{b} \times \frac{1}{c} = \frac{a}{bc}$$