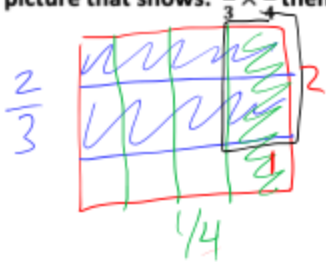
Math 9 Section 3.3 – Multiplying/Dividing Rational Numbers

Homework: Section 3.4 on Pg. 113; #1-7half, 8, 10, 11

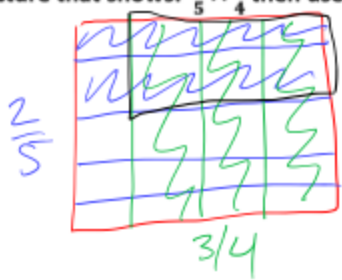
Draw a picture that shows: $\frac{2}{3}\times\frac{1}{4}$ then use it to get the answer



$\frac{2 \text{ pieces}}{12 \text{ pieces total}} = \boxed{\frac{1}{6}}$

$\frac{2 \cdot 1}{3 \cdot 4} = \frac{2}{12}$

Draw a picture that shows: $\frac{2}{5}\times\frac{3}{4}$ then use it to get the answer



$\frac{6 \text{ pieces}}{20 \text{ total}} = \frac{2 \cdot 3}{5 \cdot 4} = \frac{6}{20} = \boxed{\frac{3}{10}}$

When multiplying two fractions, you multiply the numerators together and the denominators together to get the answer.

$-\frac{2}{9}\times\frac{3}{4} = \frac{-2 \cdot 3}{9 \cdot 4} = \frac{-6}{36} \div 6 = \boxed{-\frac{1}{6}}$

$-\frac{5}{12}\times-\frac{8}{15} = \frac{-5 \cdot -8}{12 \cdot 15} = \frac{40}{180} \div 2 = \frac{20}{90} \div 10 = \boxed{\frac{2}{9}}$

This only works if the fractions are both in improper form.

$1\frac{1}{2}\times 2\frac{1}{3} = \frac{1 \cdot 2+1}{2} \times \frac{2 \cdot 3+1}{3} = \frac{3}{2} \cdot \frac{7}{3_1} = \boxed{\frac{7}{2}}$

$= \frac{21}{6} \div 3 = \boxed{\frac{7}{2}}$

When dividing two fractions, you take the reciprocal of the second Fraction (you flip it), then change the division sign to multiplication.

$\frac{7}{5} \div \frac{14}{15} = \frac{\cancel{7}^{1}}{\cancel{5}_{1}} \cdot \frac{\cancel{15}^{3}}{\cancel{14}_{2}} = \boxed{\frac{3}{2}}$

$= \frac{105 \div 5}{70 \div 5} = \frac{21 \div 7}{14 \div 7} = \boxed{\frac{3}{2}}$

$1.6 \div -\frac{5}{4} = \frac{16}{10} \div -\frac{5}{4} = \frac{8}{5} \div -\frac{5}{4} = \frac{8}{5} \cdot -\frac{4}{5}$

$= \boxed{\frac{-32}{25}}$

$\frac{9}{7} \div 3 = \frac{9}{7} \div \frac{3}{1} = \frac{9}{7} \cdot \frac{1}{3} = \frac{9 \div 3}{21 \div 3} = \boxed{\frac{3}{7}}$

Improper first before flipping

$-1\frac{1}{6} \div 2\frac{5}{8} = -\frac{6+1}{6} \div \frac{16+5}{8} = -\frac{7}{6} \div \frac{21}{8} = -\frac{7}{6} \cdot \frac{8}{21}$

$= -\frac{56 \div 2}{126 \div 2} = -\frac{28 \div 7}{63 \div 7} = \boxed{-\frac{4}{9}}$