

Name: _____

Study Guide for Fraction Multiplication

Multiplying Fractions by Whole Numbers

To multiply a fraction by a whole number:

1. Rewrite the whole number as a fraction with a bottom number of 1.
2. Multiply as usual.

Example: $5 \times \frac{2}{3}$

1. Rewrite 5 as a fraction:

$$5 = \frac{5}{1}$$

2. Multiply the fractions:

$$\frac{5}{1} \times \frac{2}{3} = \frac{10}{3}$$

3. Change the product $\frac{10}{3}$ to a mixed number.

$$\frac{10}{3} = 3\frac{1}{3}$$

Have you noticed that multiplying any number by a proper fraction produces an answer that's smaller than that number? It's the opposite of the result you get from multiplying whole numbers. That's because multiplying by a proper fraction is the same as finding a *part* of something.

1. Cancel the 6 and the 9 by dividing 3 into both of them:

$6 \div 3 = 2$ and $9 \div 3 = 3$. Cross out the 6 and the 9.

$$\frac{5}{\cancel{6}_2} \times \frac{\cancel{9}^3}{20}$$

2. Cancel the 5 and the 20 by dividing 5 into both of them:

$5 \div 5 = 1$ and $20 \div 5 = 4$. Cross out the 5 and the 20.

$$\frac{\cancel{5}^1}{\cancel{6}_2} \times \frac{\cancel{9}^3}{\cancel{20}_4}$$

3. Multiply across the new top numbers and the new bottom numbers:

$$\frac{1 \times 3}{2 \times 4} = \frac{3}{8}$$

