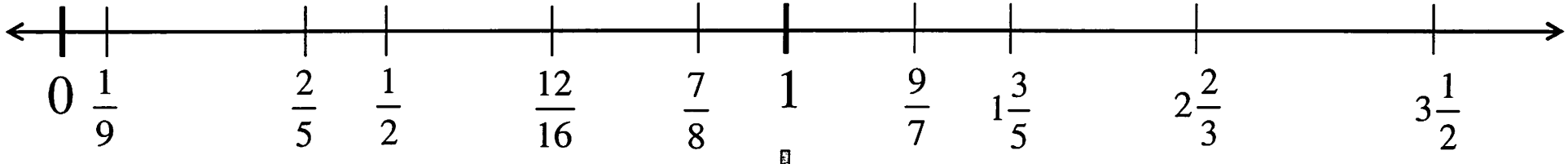
What Happens to the Product When You Multiply Fractions?



	What happened to the Product?		What happened to the Product?
	What happened to the Product?		What happened to the Product?

Conclusion:

A number • a proper fraction is _____ than the original number.
(less than 1)

A number • an improper fraction or mixed number is _____ than the original number.
(greater than 1)

Simplifying on the Diagonal Before Multiplying

Multiplying BEFORE Simplifying	Multiplying AFTER Simplifying
$\frac{13}{20} \cdot \frac{4}{39} = \frac{52}{780} =$	$\frac{13}{20} \cdot \frac{4}{39} =$

1. $\frac{10}{24} \cdot \frac{2}{5} =$

2. $\frac{4}{15} \cdot \frac{10}{18} =$

3. $4 \cdot \frac{11}{44} =$

4. $12 \cdot \frac{7}{20} =$

5. $2\frac{4}{7} \cdot 2\frac{1}{3} =$

6. $4\frac{8}{9} \cdot 2\frac{5}{8} =$

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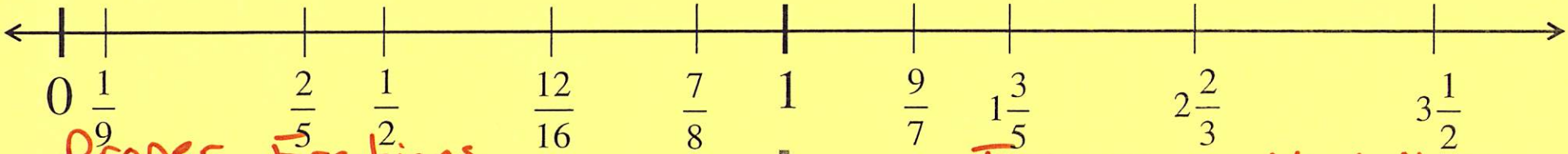

Proper Fractions

Improper or Mixed Numbers

Take 6

$6 \cdot \frac{2}{5}$

$\frac{6}{1} \cdot \frac{2}{5} = \frac{12}{5} = 2\frac{2}{5}$

What happened to the Product?

$6 \rightarrow 2\frac{2}{5}$ ↓

$6 \cdot \frac{7}{8}$

$\frac{6}{1} \cdot \frac{7}{8} = \frac{42}{8} = 5\frac{2}{8} = 5\frac{1}{4}$

What happened to the Product?

$6 \rightarrow 5\frac{1}{4}$ ↓

Take 6

$6 \cdot \frac{9}{7}$

$\frac{6}{1} \cdot \frac{9}{7} = \frac{54}{7} = 7\frac{5}{7}$

What happened to the Product?

$6 \rightarrow 7\frac{5}{7}$ ↑

$6 \cdot 3\frac{1}{2}$

$\frac{6}{1} \cdot \frac{7}{2} = \frac{42}{2} = \frac{21}{1} = 21$

What happened to the Product?

$6 \rightarrow 21$ ↑

Conclusion:

A number • a proper fraction (**less than 1**) is Smaller than the original number.

A number • an improper fraction or mixed number (**greater than 1**) is bigger than the original number.

Simplifying on the Diagonal Before Multiplying

Multiplying BEFORE Simplifying	Multiplying AFTER Simplifying
$\frac{13}{20} \cdot \frac{4}{39} = \frac{52}{780} = \frac{\div 2}{\div 2}$ $\frac{26}{390} \frac{\div 2}{\div 2}$ $\frac{13}{195}$ TOO HARD!	$\frac{\cancel{13}^{1}}{\cancel{20}_{5}} \cdot \frac{\cancel{4}^{1}}{\cancel{39}_{3}} = \frac{1}{15}$ EASY!

1. $\frac{\cancel{10}^{2}}{\cancel{24}_{12}} \cdot \frac{\cancel{2}^{1}}{\cancel{5}_{1}} = \frac{2}{12} \frac{\div 2}{\div 2} = \boxed{\frac{1}{6}}$

2. $\frac{\cancel{4}^{2}}{\cancel{15}_{3}} \cdot \frac{\cancel{10}^{2}}{\cancel{18}_{9}} = \boxed{\frac{4}{27}}$

3. $4 \cdot \frac{11}{44} =$

$\frac{\cancel{4}^{1}}{1} \cdot \frac{11}{\cancel{44}_{11}} = \frac{11}{11} = \boxed{1}$

4. $12 \cdot \frac{7}{20} =$

$\frac{\cancel{12}^{3}}{1} \cdot \frac{7}{\cancel{20}_{5}} = \frac{21}{5} = \boxed{4\frac{1}{5}}$

5. $2\frac{\overset{+}{4}}{\times 7} \cdot 2\frac{\overset{+}{1}}{\times 3} =$

$\frac{\cancel{18}^{6}}{\cancel{7}_{1}} \cdot \frac{\cancel{7}^{1}}{\cancel{3}_{1}} = \frac{6}{1} = \boxed{6}$

6. $4\frac{\overset{+}{8}}{\times 9} \cdot 2\frac{\overset{+}{5}}{\times 8} =$

$\frac{\cancel{44}^{11}}{\cancel{9}_{3}} \cdot \frac{\cancel{21}^{7}}{\cancel{8}_{2}} = \frac{77}{6} = \boxed{12\frac{5}{6}}$