

Multiplying Rational Numbers

General Rules

- do not need a common denominator
- convert mixed numbers into improper fractions
- look to reduce first before multiplying; when possible, any numerator can be reduced with any denominator
- CANNOT reduce across an equals sign
- multiply numerators together, then multiply denominators together
- leave improper or change back to a mixed number; ABC button on calculator may be used
- in story problems, the word "of" normally means using multiplication

Find the product. Write in simplest form.

$$1) \quad -\frac{1}{\cancel{15}^3} \cdot \frac{\cancel{10}^2}{13}$$
$$-\frac{2}{39}$$

$$2) \quad 3\frac{1}{3} \left(-\frac{1}{5}\right)$$
$$\frac{\cancel{10}^2}{3} \cdot \frac{-1}{\cancel{5}^1}$$
$$\frac{-2}{3}$$

Find the product. Write in simplest form.

$$3) \quad 3\frac{1}{2} \cdot \left(-1\frac{1}{14}\right) \cdot \frac{4}{5}$$

$$\begin{array}{c} - \\ \cancel{2} \mid \cancel{1} \\ \hline \end{array} \cdot \begin{array}{c} - \\ \cancel{14} \mid \cancel{5}^3 \\ \hline \end{array} \cdot \begin{array}{c} - \\ \cancel{5} \mid \cancel{4} \\ \hline \end{array} \begin{array}{c} - \\ \cancel{5} \mid 4 \\ \hline \end{array}$$

$$\frac{-3}{1} \text{ or } -3$$

4) There are 28 students in the math class. Five-eighths of those students received an A on the test. How many students received an A? Round to the nearest whole student.

$$\frac{5}{8} \cdot \frac{28}{1} = \frac{35}{2} = 17 \frac{1}{2}$$

About 17 or 18
students received
an A.

Conversion Between Units - Example is going from Hours to Minutes

- must use a conversion factor; 1 hour = 60 minutes
- then use multiplication
- assignment notebook does have common conversions listed

5) How many ounces in $\frac{3}{4}$ of a pound?

$$\frac{16}{1} \cdot \frac{3}{4} = 12 \text{ oz}$$

6) How many feet in $\frac{1}{4}$ of a mile?

$$\frac{5280}{1} \cdot \frac{1}{4} = \frac{5280}{4} = 1320 \text{ ft}$$