Multiplication of rational numbers

A. Simplify the following:

i. $(\frac{-2}{3}) \times (\frac{5}{9})$

ii. $(\frac{7}{4}) \times (\frac{-8}{21})$

iii. $(\frac{-11}{15}) \times (\frac{-3}{22})$

iv. $(\frac{-6}{13}) \times (\frac{-13}{18})$

v. $(\frac{12}{15}) \times (\frac{-10}{9})$

B. Multiply and express the result in simplest form:

i. $(\frac{-7}{8}) \times (\frac{4}{21})$

ii. $(\frac{-2}{5}) \times (\frac{-10}{3})$

iii. $(\frac{15}{32}) \times (\frac{-16}{45})$

iv. $(\frac{3}{10}) \times (\frac{-5}{6})$

v. $(\frac{-9}{11}) \times (\frac{11}{27})$

C. Find the product of the following rational numbers:

i. $(\frac{-3}{7}) \times (\frac{-2}{5}) \times (\frac{7}{6})$

ii. $(\frac{5}{8}) \times (\frac{-4}{9}) \times (\frac{3}{10})$

iii. $(\frac{-2}{3}) \times (\frac{-3}{4}) \times (\frac{1}{2})$

iv. $(\frac{-1}{5}) \times (\frac{-10}{3}) \times (\frac{9}{2})$

v. $(\frac{-8}{9}) \times (\frac{-3}{2}) \times (\frac{-1}{4})$

D. Word Problems:

i. A wire is $\frac{5}{6}$ meters long. It is cut into pieces, each of length $(\frac{2}{3})$ of the original. What is the length of one piece?

ii. A tank is filled with water up to $\frac{4}{7}$ of its capacity. If it is then multiplied by $(\frac{3}{5})$ times its current volume, what is the new volume of water in the tank?

iii. A recipe needs $(\frac{3}{4})$ cups of milk. If you are making $\frac{2}{3}$ of the recipe, how much milk will you need?

iv. The temperature dropped by $(\frac{-2}{5})$ °C each hour. What is the total temperature drop in $\frac{4}{3}$ hours?

v. A painter paints $(\frac{2}{9})$ of a wall in one hour. How much of the wall will he paint in $(\frac{-3}{2})$ hours?

E. Fill in the blanks:

i. $(\frac{-2}{3}) \times$ _____ $= \frac{4}{9}$

ii. $(\frac{3}{5}) \times (\frac{-10}{9}) =$ _____

iii. _____ $\times (\frac{5}{8}) = \frac{-25}{48}$

iv. $(\frac{-4}{7}) \times (\frac{-7}{3}) =$ _____

v. $(\frac{2}{9}) \times$ _____ $= \frac{-4}{15}$