1. To determine the smallest rational number among $\frac{-5}{12}$, $\frac{-7}{12}$, $\frac{-1}{12}$, and $\frac{-11}{12}$, compare the numerators since the denominators are the same. The smallest numerator is $-11$, so the smallest rational number is $\boxed{\frac{-11}{12}}$.

2. $$\begin{aligned}\frac{-3}{5} - \left(\frac{-2}{15} + \frac{7}{10}\right) &= \frac{-3}{5} - \left(\frac{-4}{30} + \frac{21}{30}\right) \\ &= \frac{-3}{5} - \left(\frac{17}{30}\right) \\ &= \frac{-18}{30} - \frac{17}{30} \\ &= \frac{-35}{30} \\ &= \boxed{\frac{-35}{30}}\end{aligned}$$

3. To find the equivalent rational number with numerator $-35$, set up the proportion:
$$\frac{5}{7} = \frac{-35}{x}$$
Solving for $x$:
$$5x = -245 \implies x = -49$$
Thus, the rational number is $\boxed{\frac{-35}{-49}}$.

4. $$\frac{2}{3} \div \frac{-4}{9} = \frac{2}{3} \times \frac{-9}{4} = \frac{-18}{12} = \boxed{\frac{-3}{2}}$$

5. The absolute value of $\frac{-11}{13}$ is $\boxed{\frac{11}{13}}$.

6. $$a \times b = \frac{-2}{3} \times \frac{4}{5} = \frac{-8}{15}$$
The absolute value is $\boxed{\frac{8}{15}}$.

7. $$\frac{-5}{7} + \frac{3}{14} = \frac{-10}{14} + \frac{3}{14} = \frac{-7}{14} = \frac{-1}{2}$$
Subtracting from 1:
$$1 - \left(\frac{-1}{2}\right) = 1 + \frac{1}{2} = \boxed{\frac{3}{2}}$$

8. $\frac{1}{0}$ is undefined, so it is $\boxed{\frac{1}{0}}$.

9. The statement is $\boxed{\text{True}}$.

10. The product of a rational number and its reciprocal is $\boxed{1}$.

11. $$\frac{x}{15} = \frac{4}{5} \implies x = \frac{4 \times 15}{5} = \boxed{12}$$

12. Convert to a common denominator (36):

$$\frac{-12}{36}, \frac{-16}{36}, \frac{-15}{36}$$

The ascending order is $\boxed{\frac{-4}{9}, \frac{-5}{12}, \frac{-1}{3}}$.

13. Any number multiplied by 0 is $\boxed{0}$.

14. There are $\boxed{\text{Infinite}}$ rational numbers between -1 and 0.

15. Let the other number be $x$:

$$x + \frac{-12}{5} = \frac{-1}{3} \implies x = \frac{-1}{3} - \frac{-12}{5} = \frac{-5}{15} + \frac{36}{15} = \frac{31}{15}$$

The other number is $\boxed{\frac{31}{15}}$.