Solutions

1. $$\frac{-2}{3} \times \left(\frac{4}{5} - \frac{1}{2}\right) = \frac{-2}{3} \times \left(\frac{8}{10} - \frac{5}{10}\right) = \frac{-2}{3} \times \frac{3}{10} = \frac{-6}{30} = \frac{-1}{5}$$

   Answer: $\boxed{\frac{-1}{5}}$

2. $$\frac{-10}{3} \approx -3.33, \quad \frac{5}{2} = 2.5$$

   The integers between -3.33 and 2.5 are $-3, -2, -1, 0, 1, 2$. There are $\boxed{6}$ integers.

3. The multiplicative identity for rational numbers is $\boxed{1}$.

4. $$\frac{3}{5}x = 12 \implies x = 12 \times \frac{5}{3} = 20$$

   Answer: $\boxed{20}$

5. $\frac{16}{25}$ is in its simplest form because the greatest common divisor (GCD) of 16 and 25 is 1. **Answer:** $\boxed{\frac{16}{25}}$

6. The reciprocal of $\frac{-1}{5}$ is $\boxed{-5}$.

7. $$\frac{x}{6} = \frac{-15}{18} \implies x = \frac{-15 \times 6}{18} = \frac{-90}{18} = -5$$

   Answer: $\boxed{-5}$

8. The result is $\boxed{0}$.

9. $$\frac{1}{\frac{-3}{4}} = \frac{-4}{3}, \quad \frac{-4}{3} - \left(\frac{-3}{4}\right) = \frac{-16}{12} + \frac{9}{12} = \frac{-7}{12}$$

   Answer: $\boxed{\frac{-7}{12}}$

10. $\frac{-3}{5}$ is between -1 and 0. **Answer:** $\boxed{-1 \text{ and } 0}$

11. $$x \div y = \frac{2}{3} \div \frac{3}{2} = \frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$$

    Answer: $\boxed{\frac{4}{9}}$

12. $\frac{p}{q}$ is positive if both p and q are positive or both are negative. **Answer:** $\boxed{\text{Either (a) or (b)}}$

13.

$$\frac{1}{2}+\frac{1}{3}=\frac{5}{6}, \quad \frac{1}{2}\times\frac{1}{3}=\frac{1}{6}, \quad \frac{\frac{5}{6}}{\frac{1}{6}}=5$$

Answer: $\boxed{5}$

14.

$$|-\frac{1}{2}|=\frac{1}{2}, \quad |\frac{1}{4}|=\frac{1}{4}, \quad \frac{1}{2}>\frac{1}{4}$$

Answer: $\boxed{|-\frac{1}{2}|}$

15.

$$y=1-\frac{4}{9}=\frac{5}{9}$$

Answer: $\boxed{\frac{5}{9}}$