Solutions

1. Let the other number be x. Given:

$$\frac{4}{5} \times x = -\frac{16}{25}$$

$$x = -\frac{16}{25} \div \frac{4}{5} = -\frac{16}{25} \times \frac{5}{4} = -\frac{4}{5}$$

Answer: $\boxed{A}$

2. Simplify $\frac{-144}{252}$:

$$\frac{-144}{252} = \frac{-144 \div 36}{252 \div 36} = \frac{-4}{7}$$

Answer: $\boxed{A}$

3. Between any two distinct rational numbers, there are infinitely many rational numbers. **Answer:** $\boxed{D}$

4. Let the number to be added be x:

$$\frac{-5}{8} + x = \frac{5}{9}$$

$$x = \frac{5}{9} - \left(-\frac{5}{8}\right) = \frac{5}{9} + \frac{5}{8} = \frac{40}{72} + \frac{45}{72} = \frac{85}{72}$$

Answer: $\boxed{A}$

5. The multiplicative inverse of $\frac{-3}{4}$ is $\frac{-4}{3}$. The additive inverse of $\frac{-4}{3}$ is $\frac{4}{3}$. **Answer:** $\boxed{A}$

6. Factor out $\frac{2}{3}$:

$$\frac{2}{3}\left(\frac{-5}{7} + \frac{-2}{7}\right) = \frac{2}{3}\left(\frac{-7}{7}\right) = \frac{2}{3} \times (-1) = -\frac{2}{3}$$

Answer: $\boxed{B}$

7. This illustrates the distributive property. **Answer:** $\boxed{C}$

8. $\frac{p}{q} > \frac{r}{s}$ if and only if $ps > qr$. **Answer:** $\boxed{A}$

9. $(-1)^{-1} = \frac{1}{-1} = -1$. **Answer:** $\boxed{B}$

10. Multiply numerator and denominator by 11:

$$\frac{3}{4} = \frac{3 \times 11}{4 \times 11} = \frac{33}{44}$$

Answer: $\boxed{B}$

11. Sum of $\frac{2}{3}$ and $\frac{5}{6}$:

$$\frac{2}{3} + \frac{5}{6} = \frac{4}{6} + \frac{5}{6} = \frac{9}{6} = \frac{3}{2}$$

Reciprocal of $\frac{3}{2}$ is $\frac{2}{3}$. **Answer:** $\boxed{C}$

12. Calculate $x - y$:

$$x - y = \frac{1}{3} - \frac{6}{7} = \frac{7}{21} - \frac{18}{21} = \frac{-11}{21}$$

Reciprocal of $\frac{-11}{21}$ is $\frac{-21}{11}$. **Answer:** $\boxed{A}$

13. $\frac{-7}{4}$ is negative, so it lies to the left of 0. **Answer:** $\boxed{B}$

14. The sum of a rational number and its additive inverse is always 0. **Answer:** $\boxed{B}$

15. Cross-multiply:

$$-3 \times 28 = 7 \times x \implies x = \frac{-84}{7} = -12$$

Answer: $\boxed{A}$