2.4 Dividing Fractions w/negatives p.66

Steps:

- decide if the quotient (answer) will be negative or positive according to the rules:
  - same sign → positive
  - different signs → negative
- turn mixed numbers into improper fractions
- copy - switch - flip
  - copy: copy the first fraction exactly
  - switch: change ÷ into ×
  - flip: reciprocal (the second fraction only) $\frac{9}{7} \to \frac{7}{9}$
- cross simplify, if possible
- multiply across $\frac{n \cdot n}{d \cdot d}$
- simplify, if necessary (reduce &/or turn improper fractions back to mixed numbers)
- DETERMINE THE SIGN OF YOUR QUOTIENT

Examples:

① $-\frac{4}{9} \div 2 \to -\frac{4}{9} \div \frac{2}{1}$

$-\frac{\overset{2}{\cancel{4}}}{9} \cdot \frac{1}{\underset{1}{\cancel{2}}} = \boxed{-\frac{2}{9}}$

② $3\frac{1}{7} \div (-3\frac{2}{3})$

$\frac{22}{7} \div \frac{11}{3} \to \frac{\overset{2}{\cancel{22}}}{7} \cdot \frac{3}{\underset{1}{\cancel{11}}} = \boxed{-\frac{6}{7}}$

③ $1\frac{1}{5} \div 2\frac{1}{4}$

$\frac{6}{5} \div \frac{9}{4}$

$\frac{\overset{2}{\cancel{6}}}{5} \cdot \frac{4}{\underset{3}{\cancel{9}}} = \boxed{\frac{8}{15}}$

④ $-9\frac{1}{3} \div (-5\frac{3}{5})$

$\frac{28}{3} \div \frac{28}{5} \to \frac{\overset{1}{\cancel{28}}}{3} \cdot \frac{5}{\underset{1}{\cancel{28}}} = \frac{5}{3} = \boxed{1\frac{2}{3}}$

⑤ $-1\frac{2}{3} \div 1\frac{3}{4}$

$-\frac{5}{3} \div \frac{7}{4}$

$-\frac{5}{3} \cdot \frac{4}{7} = \boxed{-\frac{20}{21}}$

⑥ $1\frac{1}{5} \div 1\frac{2}{5}$

$\frac{6}{5} \div \frac{7}{5}$

$\frac{6}{5} \cdot \frac{\overset{1}{\cancel{5}}}{7} = \boxed{\frac{6}{7}}$