

Review Sheet Solutions

CH. 3

$$\textcircled{1} \frac{2a+5}{4a+7} \cdot \frac{7+4a}{2a-5} \rightarrow \frac{(2a+5)(\cancel{7+4a})}{(\cancel{4a+7})(2a-5)} \rightarrow \boxed{\frac{2a+5}{2a-5}}$$

$$\textcircled{2} \frac{b+3}{6b-5} \div \frac{3b+1}{6b-5} \rightarrow \frac{b+3}{6b-5} \cdot \frac{6b-5}{3b+1} \rightarrow \frac{(b+3)(\cancel{6b-5})}{(\cancel{6b-5})(3b+1)} \rightarrow \boxed{\frac{b+3}{3b+1}}$$

$$\textcircled{3} \frac{8c}{(3c+2)^2} \cdot \frac{3c+2}{9c-1} \rightarrow \frac{(8c)(\cancel{3c+2})}{(3c+2)^2(9c-1)} \rightarrow \boxed{\frac{8c}{(3c+2)(9c-1)}}$$

$$\textcircled{4} \frac{d^2+4d+4}{d^2-4} \xrightarrow{\substack{\text{(factor)} \\ \text{(diff. sq.)}}} = \frac{(d+2)(\cancel{d+2})}{(d-2)(\cancel{d+2})} \rightarrow \boxed{\frac{d+2}{d-2}}$$

d	d ²	2d
2	2d	4
d	2	

(d+2)(d+2)

$$\textcircled{5} \frac{3e+9}{e^2+3e} \xrightarrow{\substack{\text{(simple factor)} \\ \text{(factor)}}} = \frac{3(\cancel{e+3})}{e(\cancel{e+3})} \rightarrow \boxed{\frac{3}{e}}$$

$$\textcircled{6} \frac{2f^2+5f-12}{6f^2-13f+6} \xrightarrow{\substack{\text{(factor)} \\ \text{(factor)}}} = \frac{\begin{array}{|c|c|c|} \hline 2f & 2f^2 & 8f \\ \hline -3 & -3f & -12 \\ \hline f & 4 & \\ \hline \end{array}}{\begin{array}{|c|c|c|} \hline 3f & 6f^2 & -9f \\ \hline -2 & -4f & +6 \\ \hline 2f & -3 & \\ \hline \end{array}} \rightarrow \boxed{\frac{f+4}{3f-2}}$$

$$\textcircled{7} \frac{3g^{(g+5)}}{g-2(g+5)} + \frac{4^{(g-2)}}{g+5(g-2)} \rightarrow \frac{(3g^2+15g)}{(g+5)(g-2)} + \frac{(4g-8)}{(g+5)(g-2)} \rightarrow \frac{3g^2+15g+4g-8}{(g+5)(g-2)}$$

$$\boxed{\frac{3g^2+19g-8}{(g+5)(g-2)}} \quad \text{(CAN'T FACTOR ANYMORE)}$$

$$\textcircled{8} \quad \frac{7h-10}{(a-h)(h-a)} - \frac{2h(a-h)}{h-a(a+h)} \rightarrow \frac{7h-10}{(a+h)(h-a)} - \frac{2h(a-h)}{(h-a)(a-h)} \rightarrow \frac{7h-10 - (4h-2h^2)}{(a-h)(h-a)}$$

$$\frac{7h-10-4h+2h^2}{(a-h)(h-a)} \rightarrow \frac{3h+2h^2-10}{(a-h)(h-a)} = \boxed{\frac{2h^2+3h-10}{(a-h)(h-a)} \text{ or } \frac{-2h^2-3h+10}{(h-a)(h-a)}}$$

$$\textcircled{9} \quad \frac{j^2+6j}{(j+6)^2} \cdot \frac{j^2+7j+6}{j^2-1} \rightarrow \frac{j(j+6)}{(j+6)^2} \cdot \frac{(j+1)(j+6)}{j^2-1} \rightarrow \frac{j(j+6)(j+6)(j+1)}{(j+6)^2(a-1)(j+1)}$$

$\begin{array}{c} j \\ 1 \end{array} \begin{array}{|c|c|} \hline j^2 & 6j \\ \hline j & 6 \\ \hline \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \begin{array}{l} 6j^2 \\ 7j \end{array} = (j+1)(j+6)$

$\begin{array}{|c|} \hline j \\ \hline j-1 \\ \hline \end{array}$

$$\textcircled{10} \quad \frac{(a) \quad (c)}{k^2-4k-5} \div \frac{k^2-2k-15}{(b) \quad (d) \quad k^2+4k-12}$$

(a) $\begin{array}{|c|c|} \hline k^2 & 5k \\ \hline k & -5 \\ \hline \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \begin{array}{l} -5k^2 \\ -4k \end{array} = (k+1)(k-5)$

(b) $\begin{array}{|c|c|} \hline k^2 & 2k \\ \hline -2 & -2k \\ \hline \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \begin{array}{l} 4k^2 \\ -4k \end{array} = (k-2)(k-2)$

(c) $\begin{array}{|c|c|} \hline k^2 & 5k \\ \hline 3k & 15 \\ \hline \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \begin{array}{l} -15k^2 \\ -2k \end{array} = (k+3)(k-5)$

(d) $\begin{array}{|c|c|} \hline k^2 & 2k \\ \hline 6k & 12 \\ \hline \end{array} \begin{array}{l} \diagdown \\ \diagup \end{array} \begin{array}{l} -12k^2 \\ -2k \end{array} = (k+6)(k-2)$

$$\frac{(k+1)(k-5)}{(k-2)(k-2)} \div \frac{(k+3)(k-5)}{(k+6)(k-2)}$$

$$\frac{(k+1)(k-5)}{(k-2)(k-2)} \cdot \frac{(k+6)(k-2)}{(k+3)(k-5)}$$

$$\frac{(k+1)(\cancel{k-5})(k+6)(\cancel{k-2})}{(k-2)(\cancel{k-2})(k+3)(\cancel{k-5})} \rightarrow \boxed{\frac{(k+1)(k+6)}{(k-2)(k+3)}}$$

$$\boxed{\frac{(k+1)(k+6)}{(k-2)(k+3)}}$$