

Math 4 3-5 Guided ws Practice

$$\textcircled{1} \quad \frac{1}{x} + \frac{5}{x^2}$$

$$\left(\frac{x}{x}\right)\frac{1}{x} + \frac{5}{x^2} = \frac{x+5}{x^2}$$

$$\textcircled{2} \quad \frac{8}{a^2b} - \frac{6}{ab^3}$$

$$\left(\frac{b^2}{b^2}\right)\frac{8}{a^2b} - \frac{6}{ab^3}\left(\frac{a}{a}\right) = \frac{8b^2 - 6a}{a^2b^3}$$

$$\textcircled{3} \quad \frac{a+3}{3} - \frac{6-a}{6}$$

$$\left(\frac{2}{2}\right)\frac{a+3}{3} + \frac{a-6}{6}$$

$$\frac{2a+6+a-6}{6} = \frac{3a}{6} = \frac{a}{2}$$

$$\textcircled{4} \quad \frac{2x-3}{3x^2} + \frac{3x+3}{9x}$$

$$\frac{2x-3}{3x^2} + \frac{x+1}{3x}\left(\frac{x}{x}\right)$$

$$\frac{2x-3+x^2+x}{3x^2} = \frac{x^2+3x-3}{3x^2}$$

$$\textcircled{5} \quad \frac{5}{x-1} + \frac{5}{x+1}$$

$$\left(\frac{x+1}{x+1}\right)\frac{5}{x-1} + \frac{5}{x+1}\left(\frac{x-1}{x-1}\right)$$

$$\frac{5x+5+5x-5}{(x+1)(x-1)} = \frac{10x}{(x+1)(x-1)}$$

$$\textcircled{6} \quad \frac{3x}{x^2-25} - \frac{4}{5-x}$$

$$\frac{3x}{(x+5)(x-5)} + \frac{4}{x-5}\left(\frac{x+5}{x+5}\right)$$

$$\frac{7x+20}{(x+5)(x-5)}$$

$$\textcircled{7} \quad \frac{1}{x^2-3x-10} + \frac{1}{x^2+9x+14}$$

$$\left(\frac{x+7}{x+7}\right)\frac{1}{(x-5)(x+2)} + \frac{1}{(x+7)(x+2)}\left(\frac{x-5}{x-5}\right)$$

$$\frac{2x+2}{(x+7)(x-5)(x+2)}$$

$$(8) \frac{3x+1}{x^2+4x+3} - \frac{x+6}{x^2-3x-4}$$

$$\left(\frac{x-4}{x-4}\right) \frac{3x+1}{(x+1)(x+3)} - \frac{x+6}{(x-4)(x+1)} \left(\frac{x+3}{x+3}\right)$$

$$\frac{(3x^2-11x-4) - (x^2+9x+18)}{(x-4)(x+1)(x+3)}$$

$$\frac{2x^2-20x-22}{\text{CD}}$$

$$\frac{2(x-11)(x+1)}{(x-4)(x+1)(x+3)} = \boxed{\frac{2(x-11)}{(x-4)(x+3)}}$$

$$(9) \frac{3}{1-z} + \frac{3}{1+z} = \frac{6z}{z^2-1^2}$$

$$\left(\frac{1+z}{1+z}\right) \frac{3}{1-z} + \left(\frac{1-z}{1-z}\right) \frac{3}{1+z} + \frac{6z}{(1+z)(1-z)}$$

$$\frac{3+3z+3-3z+6z}{(1+z)(1-z)}$$

$$\frac{6+6z}{(1+z)(1-z)} = \frac{6(1+z)}{(1+z)(1-z)}$$

$$= \boxed{\frac{6}{1-z}}$$

$$(10) \frac{1}{m} - \frac{2}{m^2} + \frac{2}{m+1}$$

$$\left(\frac{m(m+1)}{m(m+1)}\right) \frac{1}{m} - \frac{2}{m^2} \left(\frac{m+1}{m+1}\right) + \frac{2}{m+1} \left(\frac{m^2}{m^2}\right)$$

$$\frac{m^2+m-2m-2+2m^2}{m^2(m+1)}$$

$$\boxed{\frac{3m^2-m-2}{m^2(m+1)}}$$