Review for Quiz

Key

① $\frac{xy+3y}{3y} = \frac{y(x+3)}{3y} = \boxed{\frac{x+3}{3}}$

② $\frac{x^2-10x+25}{x-5} = \frac{(x-5)(x-5)}{x-5} = \boxed{x-5}$

③ $\frac{-2x-12}{3x^2+18x} = \frac{-2(x+6)}{3x(x+6)} = \boxed{\frac{-2}{3x}}$

④ $\frac{x^2+4x+3}{18+3x-x^2} = \frac{x^2+4x+3}{-1(x^2-3x-18)} = \frac{(x+3)(x+1)}{-1(x-6)(x+3)}$

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

⑤ $(x^2+x-6) \div \frac{x^2+2x-24}{x-2} \cdot \frac{x-4}{x+3}$

$(x+3)(x-2) \cdot \frac{x-2}{(x-4)(x+6)} \cdot \frac{x-4}{x+3} = \boxed{\frac{(x-2)^2}{x+6}}$

⑥ $\frac{r}{8} \cdot \frac{8}{r} = \boxed{1}$

⑦ $\frac{a+2}{15a^2} \cdot \frac{3a^3}{a^2-4} = \frac{a+2}{15a^2} \cdot \frac{3a^3}{(a-2)(a+2)} = \boxed{\frac{a}{5(a-2)}}$

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

$= \boxed{\frac{x+2}{x-2}}$

(9) $\frac{15a}{3b-a} \div \frac{5a^3}{3b-a} = \frac{\overset{3}{15a}}{3b-a} \cdot \frac{3b-a}{5a^3} = \boxed{\frac{3}{a^2}}$ (1, a^2)

(10) $\frac{n^2+8n+16}{n^2+4n} \div \frac{n^2-16}{1} = \frac{n^2+8n+16}{n^2+4n} \cdot \frac{1}{n^2-16}$

$\frac{(n+4)(n+4)}{n(n+4)} \cdot \frac{1}{(n+4)(n-4)} = \boxed{\frac{1}{n(n-4)}}$

(11) $\frac{9-m^2}{m^5} \div \frac{m+3}{m} = \frac{9-m^2}{m^5} \cdot \frac{m}{m+3} =$

$\frac{(3-m)(3+m)}{m^5} \cdot \frac{m}{m+3} = \boxed{\frac{3-m}{m^4}}$ $\boxed{\frac{3-m}{m^4}}$

(12) $\frac{12x}{5} + \frac{9x}{5} - \frac{x}{5} = \frac{20x}{5} = \boxed{4x}$

(13) $\frac{4y-15}{y-2} + \frac{2y-3}{y-2} = \frac{6y-18}{y-2} = \boxed{\frac{6(y-3)}{y-2}}$

(14) $\frac{7x+9}{5x-1} - \frac{2x+10}{5x-1} = \frac{5x-1}{5x-1} = \boxed{1}$

(15) $\frac{5}{5}\frac{r}{4y} - \frac{s}{5y}\frac{4}{4} = \frac{5r}{20y} - \frac{4s}{20y} = \boxed{\frac{5r-4s}{20y}}$

LCD $20y$

(16) $\frac{3}{3}\frac{1}{x+1} + \frac{2x}{3(x+1)} = \frac{3}{3(x+1)} + \frac{2x}{3(x+1)} = \boxed{\frac{3+2x}{3(x+1)}}$

(17) $\frac{m}{3m-9} - \frac{2m}{12m-36} = \frac{4}{4}\frac{m}{3(m-3)} - \frac{2m}{12(m-3)}$

$= \frac{4m}{12(m-3)} - \frac{2m}{12(m-3)} = \frac{12m}{12(m-3)}$

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$= \boxed{\frac{m}{6(m-3)}}$

(18) $\frac{3x}{(x+1)(x-1)} - \frac{x}{(x-1)}\frac{(x+1)}{(x+1)} = \frac{3x}{(x+1)(x-1)} + \frac{-x^2+x}{(x+1)(x-1)}$

$= \frac{-x^2+2x}{(x+1)(x-1)} = \boxed{\frac{-x(x-2)}{(x+1)(x-1)}}$

11. $\frac{(x+6)}{(x+6)}\frac{x+2}{x-1} - \frac{2(x-1)}{x+6(x-1)} \quad \frac{14}{x^2+5x-6}$

$(x+6)(x-1)$

$= \frac{x^2+2x+6x+12}{(x+6)(x-1)} + \frac{-2x+2}{(x+6)(x-1)} + \frac{-14}{(x+6)(x-1)}$

$= \frac{x^2+6x}{(x+6)(x-1)} = \frac{x(x+6)}{(x+6)(x-1)} = \boxed{\frac{x}{x-1}}$