Complex Fractions

Express the following as a simple fraction reduced to lowest terms.

1) $\dfrac{3}{4} \div \dfrac{1}{2}$

2) $\dfrac{\frac{7}{8}}{\frac{3}{4}}$

3) $\dfrac{\frac{5}{3a^2b}}{\frac{25}{9ab^2}}$

4) $\dfrac{\frac{3x^2y}{2ab}}{\frac{9x}{16a^2}}$

5) $\dfrac{\frac{5}{x+y}}{\frac{5}{x-y}}$

6) $\dfrac{\frac{x^2-x-2}{x-5}}{\frac{x^2-3x+2}{x-1}}$

7) $\dfrac{1-\frac{1}{x^2}}{\frac{x-1}{x}}$

8) $\left(1-\dfrac{4}{x^2}\right) \div \left(\dfrac{1}{x}-\dfrac{2}{x^2}\right)$

9) $\left(x-\dfrac{3}{y^2}\right) \div \left(\dfrac{2}{x}-\dfrac{3}{y^2}\right)$

10) $\dfrac{3+\frac{9}{x}}{x-7-\frac{30}{x}}$

11) $\dfrac{2+\frac{3}{x}-\frac{2}{x^2}}{\frac{2}{x^2}-\frac{1}{x^3}}$

12) $\dfrac{\frac{9}{y}+\frac{12}{x}+\frac{4y}{x^2}}{\frac{9}{y}+\frac{9}{x}+\frac{2y}{x^2}}$

13) $\left(\dfrac{6a}{b}-5-\dfrac{6b}{a}\right)\div\left(2-\dfrac{3b}{a}\right)$

14) $\dfrac{16-\dfrac{49}{x^2}}{12+\dfrac{21}{x}}$

15) $\dfrac{5+\dfrac{35}{x}}{1+\dfrac{3}{x}-\dfrac{28}{x^2}}$

16) $\dfrac{\dfrac{y+4}{y+2}-\dfrac{y}{y-2}}{4}$

17) $\dfrac{\dfrac{2}{x^2}+\dfrac{1}{x}}{\dfrac{4}{x^2}-1}$

18) $\left(a+\dfrac{2a}{a-1}\right)\div\left(a-\dfrac{2a}{a-1}\right)$

19) $\dfrac{\dfrac{7}{x+h}-\dfrac{7}{x}}{h}$

20) $\dfrac{\dfrac{z}{z-2}+\dfrac{1}{z+1}}{\dfrac{3z}{z^2-z-2}}$

Answers: 1) $\dfrac{3}{2}$ 2) $\dfrac{7}{6}$ 3) $\dfrac{3b}{5a}$ 4) $\dfrac{8axy}{3b}$ 5) $\dfrac{x-y}{x+y}$ 6) $\dfrac{x+1}{x-5}$ 7) $\dfrac{x+1}{x}$ 8) $x+2$

9) $\dfrac{x^2y^2-3x}{2y^2-3x}$ 10) $\dfrac{3}{x-10}$ 11) $x(x+2)$ 12) $\dfrac{3x+2y}{3x+y}$ 13) $\dfrac{3a+2b}{b}$ 14) $\dfrac{4x-7}{3x}$

15) $\dfrac{5x}{x-4}$ 16) $\dfrac{-2}{(y+2)(y-2)}$ 17) $\dfrac{1}{2-x}$ 18) $\dfrac{a+1}{a-3}$ 19) $\dfrac{-7}{x(x+h)}$ 20) $\dfrac{z^2+2z-2}{3z}$