

7.5 Practice - Complex Fractions

Solve.

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

$$2) \frac{\frac{1}{y^2} - 1}{1 + \frac{1}{y}}$$

$$3) \frac{a - 2}{\frac{4}{a} - a}$$

$$4) \frac{\frac{25}{a} - a}{5 + a}$$

$$5) \frac{\frac{1}{a^2} - \frac{1}{a}}{\frac{1}{a^2} + \frac{1}{a}}$$

$$6) \frac{\frac{1}{b} + \frac{1}{2}}{\frac{4}{b^2 - 1}}$$

$$7) \frac{2 - \frac{4}{x+2}}{5 - \frac{10}{x+2}}$$

$$8) \frac{4 + \frac{12}{2x-3}}{5 + \frac{15}{2x-3}}$$

$$9) \frac{\frac{3}{2a-3} + 2}{\frac{-6}{2a-3} - 4}$$

$$10) \frac{\frac{-5}{b-5} - 3}{\frac{10}{b-5} + 6}$$

$$11) \frac{\frac{x}{x+1} - \frac{1}{x}}{\frac{x}{x+1} + \frac{1}{x}}$$

$$12) \frac{\frac{2a}{a-1} - \frac{3}{a}}{\frac{-6}{a-1} - 4}$$

$$13) \frac{\frac{3}{x}}{\frac{9}{x^2}}$$

$$14) \frac{\frac{x}{3x-2}}{9x^2 - 4}$$

$$15) \frac{\frac{a^2 - b^2}{4a^2b}}{\frac{a+b}{16ab^2}}$$

$$16) \frac{1 - \frac{1}{x} - \frac{6}{x^2}}{1 - \frac{4}{x} + \frac{3}{x^2}}$$

$$17) \frac{1 - \frac{3}{x} - \frac{10}{x^2}}{1 + \frac{11}{x} + \frac{18}{x^2}}$$

$$18) \frac{\frac{15}{x^2} - \frac{2}{x} - 1}{\frac{4}{x^2} - \frac{5}{x} + 4}$$

$$19) \frac{1 - \frac{2x}{3x-4}}{x - \frac{32}{3x-4}}$$

$$20) \frac{1 - \frac{12}{3x+10}}{x - \frac{8}{3x+10}}$$

$$21) \frac{x - 1 + \frac{2}{x-4}}{x + 3 + \frac{6}{x-4}}$$

$$22) \frac{x - 5 - \frac{18}{x+2}}{x + 7 + \frac{6}{x+2}}$$

$$23) \frac{x - 4 + \frac{9}{2x+3}}{x + 3 - \frac{5}{2x+3}}$$

$$24) \frac{\frac{1}{a} - \frac{3}{a-2}}{\frac{2}{a} + \frac{5}{a-2}}$$

$$25) \frac{\frac{2}{b} - \frac{5}{b+3}}{\frac{3}{b} + \frac{3}{b+3}}$$

$$26) \frac{\frac{1}{y^2} - \frac{1}{xy} - \frac{2}{x^2}}{\frac{1}{y^2} - \frac{3}{xy} + \frac{2}{x^2}}$$

$$27) \frac{\frac{2}{b^2} - \frac{5}{ab} - \frac{3}{a^2}}{\frac{2}{b^2} + \frac{7}{ab} + \frac{3}{a^2}}$$

$$28) \frac{\frac{x-1}{x+1} - \frac{x+1}{x-1}}{\frac{x-1}{x+1} + \frac{x+1}{x-1}}$$

$$29) \frac{\frac{y}{y+2} - \frac{y}{y-2}}{\frac{y}{y+2} + \frac{y}{y-2}}$$

$$30) \frac{\frac{x+1}{x-1} - \frac{1-x}{1+x}}{\frac{1}{(x+1)^2} + \frac{1}{(x-1)^2}}$$

Simplify each of the following fractional expressions.

$$31) \frac{x^{-2} - y^{-2}}{x^{-1} + y^{-1}}$$

$$32) \frac{x^{-2}y + xy^{-2}}{x^{-2} - y^{-2}}$$

$$33) \frac{x^{-3}y - xy^{-3}}{x^{-2} - y^{-2}}$$

$$34) \frac{4 - 4x^{-1} + x^{-2}}{4 - x^{-2}}$$

$$35) \frac{x^{-2} - 6x^{-1} + 9}{x^2 - 9}$$

$$36) \frac{x^{-3} + y^{-3}}{x^{-2} - x^{-1}y^{-1} + y^{-2}}$$



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Answers - Complex Fractions

1) $\frac{x}{x-1}$

2) $\frac{1-y}{y}$

3) $\frac{-a}{a+2}$

4) $\frac{5-a}{a}$

5) $-\frac{a-1}{a+1}$

6) $\frac{b^3+2b-b-2}{8b}$

7) $\frac{2}{5}$

8) $\frac{4}{5}$

9) $-\frac{1}{2}$

10) $-\frac{1}{2}$

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

12) $\frac{2a^2-3a+3}{-4a^2-2a}$

13) $\frac{x}{3}$

14) $3x+2$

15) $\frac{4b(a-b)}{a}$

16) $\frac{x+2}{x-1}$

17) $\frac{x-5}{x+9}$

18) $-\frac{(x-3)(x+5)}{4x^2-5x+4}$

19) $\frac{1}{3x+8}$

20) $\frac{1}{x+4}$

21) $\frac{x-2}{x+2}$

22) $\frac{x-7}{x+5}$

23) $\frac{x-3}{x+4}$

24) $\frac{-2a-2}{3a-4}$

25) $-\frac{b-2}{2b+3}$

26) $\frac{x+y}{x-y}$

27) $\frac{a-3b}{a+3b}$

28) $-\frac{2x}{x^2+1}$

29) $-\frac{2}{y}$

30) x^2-1

31) $\frac{y-x}{xy}$

32) $\frac{x^2-xy+y^2}{y-x}$

33) $\frac{x^2+y^2}{xy}$

34) $\frac{2x-1}{2x+1}$

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

36) $\frac{x+y}{xy}$



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