Intermediate Algebra Skill

Adding or Subtracting Rational Expressions with Unlike Denominators

Perform the indicated operations and simplify when possible.

1) $\dfrac{a^2}{a-b}+\dfrac{b^2}{b-a}$

2) $\dfrac{x-7}{x^2-16}-\dfrac{x-1}{16-x^2}$

3) $\dfrac{t^2+3}{t^4-16}+\dfrac{7}{16-t^4}$

4) $\dfrac{m-3n}{m^3-n^3}-\dfrac{2n}{n^3-m^3}$

5) $\dfrac{a+2}{a-4}+\dfrac{a-2}{a+3}$

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

7) $\dfrac{4xy}{x^2-y^2}+\dfrac{x-y}{x+y}$

8) $\dfrac{8}{2x^2-7x+5}+\dfrac{3x+2}{2x^2-x-10}$

9) $\dfrac{4}{x+1}+\dfrac{x+2}{x^2-1}+\dfrac{3}{x-1}$

10) $\dfrac{x+6}{5x+10}-\dfrac{x-2}{4x+8}$

11) $\dfrac{5ab}{a^2-b^2}-\dfrac{a-b}{a+b}$

12) $\dfrac{x}{x^2+9x+20}-\dfrac{4}{x^2+7x+12}$

13) $\dfrac{3y}{y^2-7y+10}-\dfrac{2y}{y^2-8y+15}$

14) $\dfrac{2x+1}{x-y}+\dfrac{5x^2-5xy}{x^2-2xy+y^2}$

15) $\dfrac{3y+2}{y^2+5y-24}+\dfrac{7}{y^2+4y-32}$

16) $\dfrac{a-3}{a^2-16}-\dfrac{3a-2}{a^2+2a-24}$

17) $\dfrac{2}{a^2-5a+4}+\dfrac{-2}{a^2-4}$

18) $3+\dfrac{t}{t+2}-\dfrac{2}{t^2-4}$

19) $\dfrac{2}{y+3}-\dfrac{y}{y-1}+\dfrac{y^2+2}{y^2+2y-3}$

20) $\dfrac{5y}{1-2y}-\dfrac{2y}{2y+1}+\dfrac{3}{4y^2-1}$

Answers to Adding or Subtracting Rational Expressions with Unlike Denominators:

1) $a+b$

2) $\dfrac{2}{x+4}$

3) $\dfrac{1}{t^2+4}$

4) $\dfrac{1}{m^2+mn+n^2}$

5) $\dfrac{2a^2-a+14}{(a-4)(a+3)}$

6) $\dfrac{3x-1}{x+1}$

7) $\dfrac{x+y}{x-y}$

8) $\dfrac{3x^2+7x+14}{(2x-5)(x-1)(x+2)}$

9) $\dfrac{8x+1}{(x+1)(x-1)}$

10) $\dfrac{-x+34}{20(x+2)}$

11) $\dfrac{-a^2+7ab-b^2}{(a-b)(a+b)}$

12) $\dfrac{x-5}{(x+5)(x+3)}$

13) $\dfrac{y}{(y-2)(y-3)}$

14) $\dfrac{7x+1}{x-y}$

15) $\dfrac{3y^2-3y-29}{(y-3)(y+8)(y-4)}$

16) $\dfrac{-2a^2-7a-10}{(a+4)(a-4)(a+6)}$

17) $\dfrac{10a-16}{(a^2-5a+4)(a^2-4)}$

18) $\dfrac{4t^2-2t-14}{(t+2)(t-2)}$

19) $\dfrac{-y}{(y+3)(y-1)}$

20) $\dfrac{-14y^2-3y+3}{(2y+1)(2y-1)}$