

Adding and Subtracting Rational Expressions

Date _____

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Simplify each expression.

1) $\frac{6}{n-1} - \frac{3}{6}$

2) $\frac{n-5}{2(n+1)} + \frac{2}{6}$

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

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

5) $\frac{2m}{m+6} + \frac{4}{5m-6}$

6) $\frac{4}{3(r-3)} - \frac{2}{2r}$

7) $\frac{2}{v-2} - \frac{2v}{v-3}$

8) $\frac{k-5}{k+2} - \frac{4k}{2}$

9) $\frac{2}{3x-5} + \frac{2}{x+1}$

10) $\frac{5}{2(p-3)} + \frac{p+1}{p+6}$

11) $\frac{7}{n+1} - \frac{6}{n+6}$

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

13) $\frac{5k}{14k-35} + \frac{2}{3k-2}$

14) $\frac{4p}{p+8} - \frac{5}{p-7}$

15) $\frac{4n-4}{4n^2-56n+196} - 5$

16) $\frac{8}{m+8} + \frac{2m}{7m+1}$

17) $\frac{7}{5r-5} + \frac{8}{6r^2-48r}$

18) $\frac{3x}{x-4} + \frac{8x}{x-2}$

19) $\frac{3x}{5x+1} + \frac{4x}{8x^2+8x}$

20) $\frac{8}{3} + \frac{2v}{9v^2-6v-8}$

Answers to Adding and Subtracting Rational Expressions (ID: 1)

$$1) \frac{13 - n}{2(n - 1)}$$

$$5) \frac{10m^2 - 8m + 24}{(5m - 6)(m + 6)}$$

$$9) \frac{8x - 8}{(3x - 5)(x + 1)}$$

$$13) \frac{15k^2 + 18k - 70}{7(2k - 5)(3k - 2)}$$

$$17) \frac{21r^2 - 148r - 20}{15r(r - 8)(r - 1)}$$

$$2) \frac{5n - 13}{6(n + 1)}$$

$$6) \frac{r + 9}{3r(r - 3)}$$

$$10) \frac{p + 24 + 2p^2}{2(p - 3)(p + 6)}$$

$$14) \frac{4p^2 - 33p - 40}{(p - 7)(p + 8)}$$

$$18) \frac{11x^2 - 38x}{(x - 4)(x - 2)}$$

$$3) \frac{11x - 5}{2x(x - 5)}$$

$$7) \frac{6v - 6 - 2v^2}{(v - 3)(v - 2)}$$

$$11) \frac{n + 36}{(n + 6)(n + 1)}$$

$$15) \frac{-5n^2 + 71n - 246}{(n - 7)^2}$$

$$19) \frac{6x^2 + 11x + 1}{2(x + 1)(5x + 1)}$$

$$4) \frac{-25b - 15 + 5b^2}{(b - 6)(b - 3)}$$

$$8) \frac{-2k^2 - 3k - 5}{k + 2}$$

$$12) \frac{4b^2 + 10b - 6}{(b + 4)(b + 1)}$$

$$16) \frac{72m + 8 + 2m^2}{(m + 8)(7m + 1)}$$

$$20) \frac{72v^2 - 42v - 64}{3(3v - 4)(3v + 2)}$$

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Simplify each expression.

1) $\frac{3}{3p^2} + \frac{p+5}{p-4}$

2) $\frac{k+1}{k+4} + \frac{3}{4}$

3) $\frac{2x}{2(x+2)} + \frac{2x}{2}$

4) $\frac{n+4}{2n(n+1)} - \frac{6}{2}$

5) $\frac{6x}{x+5} - \frac{x-4}{3x-4}$

6) $\frac{a-6}{a+3} - \frac{5a}{4}$

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

8) $\frac{6m}{m-2} + \frac{6}{m-4}$

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

10) $\frac{6n}{3} + \frac{2}{6n(n+1)}$

11) $\frac{6r}{r+5} + \frac{3}{6r-30}$

12) $\frac{5}{2} - \frac{a+1}{4a^2+10a-6}$

13) $\frac{7}{3x+6} - \frac{5x}{x+5}$

14) $\frac{8}{x-5} - \frac{3}{x-4}$

15) $\frac{2b}{6b^2-12b} + \frac{5b}{3b+8}$

16) $\frac{m-4}{8m-48} + \frac{8}{m-8}$

17) $\frac{5x}{x-1} + \frac{2}{4x^3+16x^2}$

18) $\frac{6n}{n+6} - \frac{2}{9n+6}$

19) $\frac{8v}{v-1} + \frac{5}{v-2}$

20) $\frac{6n}{8n+24} + \frac{8}{5n+6}$

Answers to Adding and Subtracting Rational Expressions (ID: 2)

$$1) \frac{p - 4 + p^3 + 5p^2}{p^2(p - 4)}$$

$$5) \frac{17x^2 - 25x + 20}{(3x - 4)(x + 5)}$$

$$9) \frac{5x^2 - 37x - 16}{(x - 5)(3x + 4)}$$

$$13) \frac{-23x + 35 - 15x^2}{3(x + 5)(x + 2)}$$

$$17) \frac{10x^4 + 40x^3 + x - 1}{2x^2(x - 1)(x + 4)}$$

$$20) \frac{15n^2 + 50n + 96}{4(n + 3)(5n + 6)}$$

$$2) \frac{7k + 16}{4(k + 4)}$$

$$6) \frac{-11a - 24 - 5a^2}{4(a + 3)}$$

$$10) \frac{6n^3 + 6n^2 + 1}{3n(n + 1)}$$

$$14) \frac{5x - 17}{(x - 5)(x - 4)}$$

$$18) \frac{54n^2 + 34n - 12}{3(n + 6)(3n + 2)}$$

$$3) \frac{x^2 + 3x}{x + 2}$$

$$7) \frac{3x^2 + 8x - 12}{(x + 4)(x + 3)}$$

$$11) \frac{12r^2 - 59r + 5}{2(r - 5)(r + 5)}$$

$$15) \frac{-27b + 8 + 15b^2}{3(b - 2)(3b + 8)}$$

$$19) \frac{8v^2 - 11v - 5}{(v - 2)(v - 1)}$$

$$4) \frac{-6n^2 - 5n + 4}{2n(n + 1)}$$

$$8) \frac{6m^2 - 18m - 12}{(m - 4)(m - 2)}$$

$$12) \frac{5a^2 + 12a - 8}{(2a - 1)(a + 3)}$$

$$16) \frac{m^2 + 52m - 352}{8(m - 8)(m - 6)}$$

Adding and Subtracting Rational Expressions

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Simplify each expression.

$$1) \frac{k+4}{2(k+6)} - \frac{5k}{2k}$$

$$2) \frac{3}{3n} + \frac{6}{2(5n+3)}$$

$$3) \frac{6}{2(p+6)} + \frac{2}{3}$$

$$4) \frac{3r}{6} - \frac{r+5}{r+4}$$

$$5) \frac{6}{x-4} + \frac{3x}{x-1}$$

$$6) \frac{2}{2b} + \frac{b-2}{2b(5b+6)}$$

$$7) \frac{4}{6v} - \frac{v-6}{3v-4}$$

$$8) \frac{5x}{3} + \frac{x-5}{6x(x-1)}$$

$$9) \frac{4}{n+5} + \frac{4}{n-2}$$

$$10) \frac{3m}{m-2} - \frac{6}{m+6}$$

$$11) \frac{7k}{k+1} + \frac{4k}{k-7}$$

$$12) \frac{6x}{8x-64} + \frac{4}{x-2}$$

$$13) \frac{8}{a-6} - \frac{3a}{7a+4}$$

$$14) \frac{n-5}{14n^3+56n^2+42n} + \frac{7n}{3n}$$

$$15) \frac{4x}{7x-14} + \frac{6x}{x-5}$$

$$16) \frac{3m-8}{m-1} + \frac{6}{m-5}$$

$$17) \frac{n-2}{24n^3+138n^2+90n} - 7n$$

$$18) \frac{8}{x-4} - \frac{6}{x+1}$$

$$19) \frac{6x}{x+6} + \frac{5}{x+3}$$

$$20) \frac{p-1}{2p+6} + \frac{p-1}{4p^2+20p}$$

Answers to Adding and Subtracting Rational Expressions (ID: 3)

- 1) $\frac{-2k - 13}{k + 6}$
- 2) $\frac{8n + 3}{n(5n + 3)}$
- 3) $\frac{21 + 2p}{3(p + 6)}$
- 4) $\frac{r^2 + 2r - 10}{2(r + 4)}$
- 5) $\frac{-6x - 6 + 3x^2}{(x - 4)(x - 1)}$
- 6) $\frac{11b + 10}{2b(5b + 6)}$
- 7) $\frac{24v - 8 - 3v^2}{3v(3v - 4)}$
- 8) $\frac{10x^3 - 10x^2 + x - 5}{6x(x - 1)}$
- 9) $\frac{8n + 12}{(n - 2)(n + 5)}$
- 10) $\frac{3m^2 + 12m + 12}{(m - 2)(m + 6)}$
- 11) $\frac{11k^2 - 45k}{(k - 7)(k + 1)}$
- 12) $\frac{3x^2 + 10x - 128}{4(x - 8)(x - 2)}$
- 13) $\frac{74a + 32 - 3a^2}{(a - 6)(7a + 4)}$
- 14) $\frac{297n - 15 + 98n^3 + 392n^2}{42n(n + 3)(n + 1)}$
- 15) $\frac{46x^2 - 104x}{7(x - 5)(x - 2)}$
- 16) $\frac{3m^2 - 17m + 34}{(m - 5)(m - 1)}$
- 17) $\frac{-168n^4 - 966n^3 - 630n^2 + n - 2}{6n(n + 5)(4n + 3)}$
- 18) $\frac{2x + 32}{(x - 4)(x + 1)}$
- 19) $\frac{6x^2 + 23x + 30}{(x + 6)(x + 3)}$
- 20) $\frac{2p^3 + 9p^2 - 8p - 3}{4p(p + 5)(p + 3)}$