

A.A.17: Addition and Subtraction of Rationals 3: Add or subtract fractional expressions with monomial or like binomial denominators

1 The expression $\frac{5x}{6} + \frac{x}{4}$ is equivalent to

- 1) $\frac{3x}{5}$
- 2) $\frac{5x^2}{10}$
- 3) $\frac{13x}{12}$
- 4) $\frac{5x}{24}$

4 Which expression is equivalent to $\frac{a}{x} + \frac{b}{2x}$?

- 1) $\frac{2a+b}{2x}$
- 2) $\frac{2a+b}{x}$
- 3) $\frac{a+b}{3x}$
- 4) $\frac{a+b}{2x}$

2 The sum of $\frac{3}{x} + \frac{2}{5}$, $x \neq 0$, is

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

5 What is the sum of $\frac{3}{7n}$ and $\frac{7}{3n}$?

- 1) $\frac{1}{n}$
- 2) $\frac{10}{21n}$
- 3) $\frac{42}{21n}$
- 4) $\frac{58}{21n}$

3 What is the sum of $\frac{2}{x}$ and $\frac{x}{2}$?

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

6 The reciprocal of the expression $\frac{2}{x} + \frac{3}{1}$ is

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

7 The expression $\frac{y}{x} - \frac{1}{2}$ is equivalent to

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

8 Expressed as a single fraction, $\frac{3}{4x} - \frac{2}{5x}$ is equal to

- 1) $-\frac{1}{x}$
- 2) $\frac{1}{9x}$
- 3) $\frac{1}{20x}$
- 4) $\frac{7}{20x}$

9 Expressed in simplest form, $\frac{x-7}{6} - \frac{3x-2}{12}$ is equivalent to

- 1) $\frac{2x+5}{6}$
- 2) $\frac{2x+9}{6}$
- 3) $\frac{-x-12}{12}$
- 4) $\frac{-x-16}{12}$

10 Express $\frac{1}{2x} - \frac{3}{14x}$ as a single fraction in lowest terms.

11 Expressed in simplest form, $\frac{5x+3}{x} - \frac{x-1}{2x}$ is

- 1) $\frac{4x+4}{3x}$
- 2) $\frac{2x+2}{x}$
- 3) $\frac{9x+7}{2x}$
- 4) $\frac{9x-5}{2x}$

12 Which expression is equivalent to $\frac{x^3}{x+3} - \frac{9x}{x+3}$?

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

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Answer Section

1 ANS: 3

$$\frac{(5x \times 4) + (6 \times x)}{6 \times 4} = \frac{20x + 6x}{24} = \frac{26x}{24} = \frac{13x}{12}$$

REF: 060625a

2 ANS: 2

$$\frac{(3 \times 5) + (x \times 2)}{(x)(5)} = \frac{15 + 2x}{5x} = \frac{2x + 15}{5x}$$

REF: 080207a

3 ANS: 4

$$\frac{(2 \times 2) + (x \times x)}{(x)(2)} = \frac{4 + x^2}{2x}$$

REF: 010423a

4 ANS: 1

$$\frac{(a \times 2x) + (x \times b)}{(x)(2x)} = \frac{2ax + bx}{2x^2} = \frac{x(2a + b)}{2x^2} = \frac{2a + b}{2x}$$

REF: 089911a

5 ANS: 4

$$\frac{3}{7n} + \frac{7}{3n} = \frac{9n + 49n}{21n^2} = \frac{58n}{21n^2} = \frac{58}{21n}$$

REF: 060727a

6 ANS: 2

REF: 060327siii

7 ANS: 1

$$\frac{(2 \times y) - (1 \times x)}{(x)(2)} = \frac{2y - x}{2x}$$

REF: 010016a

8 ANS: 4

$$\frac{3}{4x} - \frac{2}{5x} = \frac{15x - 8x}{20x^2} = \frac{7x}{20x^2} = \frac{7}{20x}$$

REF: 010921a

9 ANS: 3

REF: 068927siii

10 ANS:

$$\frac{2}{7x}$$

REF: 068708siii

11 ANS: 3

REF: 010118siii

12 ANS: 4

REF: 010218siii