

A.APR.D.7: Addition and Subtraction of Rationals 2

- 1 What is the least common denominator of $\frac{1}{2}$, $\frac{2}{7x}$, and $\frac{5}{x}$?
1) $9x$ 2) $2x$ 3) $14x$ 4) $14x^2$
- 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) $\frac{2x+15}{x+5}$
- 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) $\frac{4+x^2}{2x}$
- 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) $\frac{a+b}{2x}$
- 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) $\frac{58}{21n}$
- 6 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) $\frac{y-1}{x-2}$
- 7 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) $\frac{7}{20x}$
- 8 Expressed as a single fraction, what is $\frac{1}{x+1} + \frac{1}{x}$, $x \neq 0, -1$?
1) $\frac{2x+3}{x^2+x}$ 2) $\frac{2x+1}{x^2+x}$ 3) $\frac{2}{2x+1}$ 4) $\frac{3}{x^2}$
- 9 What is the sum of $\frac{3}{x-3}$ and $\frac{x}{3-x}$?
1) 1 2) -1 3) $\frac{x+3}{x-3}$ 4) 0
- 10 What is the sum of $(y-5) + \frac{3}{y+2}$?
1) $y-5$ 2) $\frac{y^2-7}{y+2}$ 3) $\frac{y-2}{y+2}$ 4) $\frac{y^2-3y-7}{y+2}$
- 11 The expression $\frac{6}{y-5} - \frac{y+5}{y^2-25}$ is equivalent to
1) $\frac{5}{y-5}$ 2) $\frac{5}{y+5}$ 3) $\frac{5y}{y-5}$ 4) $\frac{5y}{y+5}$
- 12 The expression $\frac{2}{\sin x} - \frac{5}{\sin x - 1}$ is equivalent to
1) $\frac{-3}{\sin x(\sin x - 1)}$ 2) $\frac{-3}{\sin x - 1}$
3) $\frac{-3\sin x - 2}{\sin x(\sin x - 1)}$ 4) $\frac{-3\sin x - 2}{\sin x - 1}$
- 13 Express in simplest form: $\frac{3x}{2x-6} + \frac{9}{6-2x}$
- 14 Express in simplest form: $\frac{1}{x} + \frac{1}{x+3}$

A.APR.D.7: Addition and Subtraction of Rationals 2**Answer Section**

1 ANS: 3

The LCM of 2 and 7 is 14. The LCM of x and x is x . The LCD is $14x$.

REF: 060412a

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: 1

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

REF: 010016a

7 ANS: 4

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

REF: 010921a

8 ANS: 2

$$\frac{(1 \times x) + ((x + 1) \times 1)}{(x + 1)(x)} = \frac{x + x + 1}{x^2 + x} = \frac{2x + 1}{x^2 + x}$$

REF: 069906a

9 ANS: 2

$$\frac{3}{x-3} + \frac{-x}{x-3} = \frac{3-x}{x-3} = -1$$

REF: 010315b

10 ANS: 4

$$\frac{(y-5)(y+2)+1 \times 3}{y+2} = \frac{y^2+2y-5y-10+3}{y+2} = \frac{y^2-3y-7}{y+2}$$

REF: 080505b

11 ANS: 1

$$\frac{6}{y-5} - \frac{y+5}{y^2-25} = \frac{6}{y-5} - \frac{y+5}{(y+5)(y-5)} = \frac{6}{y-5} - \frac{1}{y-5} = \frac{5}{y-5}$$

REF: 080805b

12 ANS: 3

$$\frac{2}{\sin x} - \frac{5}{\sin x - 1} = \frac{2(\sin x - 1) - 5 \sin x}{\sin x(\sin x - 1)} = \frac{2 \sin x - 2 - 5 \sin x}{\sin x(\sin x - 1)} = \frac{-3 \sin x - 2}{\sin x(\sin x - 1)}$$

REF: 060816b

13 ANS:

$$\frac{3}{2} \cdot \frac{3x}{2x-6} + \frac{9}{6-2x} = \frac{3x}{2x-6} + \frac{-9}{2x-6} = \frac{3x-9}{2x-6} = \frac{3(x-3)}{2(x-3)} = \frac{3}{2}$$

REF: 060929b

14 ANS:

$$\frac{2x+3}{x(x+3)} \cdot \frac{(1 \times (x+3)) + (x \times 1)}{x(x+3)} = \frac{x+3+x}{x(x+3)} = \frac{2x+3}{x(x+3)}$$

REF: 060524b