

A.APR.D.7: Complex Fractions 4

1 In simplest form, the expression $\frac{\frac{1}{x} - 1}{x - \frac{1}{x}}$ is

equivalent to

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

2 The expression $\frac{\frac{a}{b} - 1}{\frac{a}{b} + 1}$ is equivalent to

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

3 The fraction $\frac{b + \frac{b}{a}}{a - \frac{1}{a}}$ is equivalent to

- 1) b 2) $\frac{b}{a-1}$ 3) $\frac{2ab}{a^2-1}$ 4) $\frac{a-1}{b}$

4 The expression $\frac{\frac{x^2}{y} - y}{\frac{x}{y} + 1}$ is equivalent to

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

5 The expression $\frac{\frac{2x}{x+1}}{1 - \frac{x}{x+1}}$ is equivalent to

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

6 The expression $\frac{\frac{a-1}{a}}{\frac{a^2-1}{a^2}}$ is equivalent to

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

7 The expression $\frac{\frac{3x}{x+3}}{\frac{x}{x^2-9}}$ is equivalent to

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

8 Express in simplest form: $\frac{\frac{2}{x}}{\frac{1}{2x}}$

9 Simplify: $\frac{\frac{2}{x} - 2}{\frac{1-x}{x}}$

10 Express in simplest form: $\frac{x - \frac{1}{x}}{1 + \frac{1}{x}}$

16 Express in simplest form: $\frac{1 - \frac{1}{x}}{\frac{1}{x^2} - \frac{1}{x}}$

11 Express in simplest form: $\frac{x - \frac{9}{x}}{2 + \frac{6}{x}}$

17 Express $\frac{\frac{3}{x^2} + \frac{1}{x}}{1 - \frac{9}{x^2}}$ in simplest form.

12 Express $\frac{\frac{a}{b}}{\frac{1}{a} - \frac{1}{b}}$ in simplest form.

18 Express in simplest form: $\frac{\frac{3}{4} + \frac{3}{x}}{\frac{1}{x} + \frac{1}{4}}$

13 Express $\frac{\frac{x}{3} - 1}{\frac{x^2}{3} - 3}$ in simplest form.

19 Express in simplest form: $\frac{\frac{x-y}{y}}{\frac{1}{y} - \frac{1}{x}}$

14 Express in simplest form: $\frac{\frac{1}{a}}{\frac{1}{a} - \frac{1}{b}}$

20 Simplify: $\frac{\frac{x}{x-3} + \frac{4}{x}}{1 - \frac{1}{3-x}}$

15 Express in simplest form: $\frac{1 + \frac{x}{y}}{\frac{1}{x} + \frac{1}{y}}$

21 In simplest form, express $\frac{x+y^{-1}}{y+x^{-1}}$ with no negative exponents.

22 Simplify: $\frac{1 - \frac{3}{\cos x}}{\frac{9}{\cos^2 x} - 1}$

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Answer Section

1 ANS: 4 REF: 089531siii

2 ANS: 2 REF: 069818siii

3 ANS: 2 REF: 060128siii

4 ANS: 4 REF: 080119siii

5 ANS: 4 REF: 010126siii

6 ANS: 1 REF: 069618siii

7 ANS: 1 REF: 010320siii

8 ANS:

4

REF: 069505siii

9 ANS:

$$\left(\frac{\frac{2}{x} - 2}{\frac{1-x}{x}} \right) \left(\frac{x}{x} \right) = \frac{2-2x}{1-x} = \frac{2(1-x)}{1-x} = 2$$

REF: 019209siii

10 ANS:

 $x - 1$

REF: 080213siii

11 ANS:

$$\frac{x-3}{2}$$

REF: 060210siii

12 ANS:

$$\frac{a^2}{b-a}$$

REF: 080312siii

13 ANS:

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

REF: 010012siii

14 ANS:

$$\frac{b}{b-a}$$

REF: 010209siii

15 ANS:

$$x$$

REF: 089310siii

16 ANS:

$$-x$$

REF: 019740siii

17 ANS:

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

REF: 080014siii

18 ANS:

$$3$$

REF: 019910siii

19 ANS:

$$x$$

REF: 060012siii

20 ANS:

$$\frac{x+6}{x}$$

REF: 089838siii

21 ANS:

$$\frac{x}{y}$$

REF: 010141siii

22 ANS:

$$\frac{-\cos x}{3 + \cos x}$$

REF: 019539siii