

NAME: \_\_\_\_\_

*P.I. A2.A.23: Solve rational equations*

Solve:

1.  $\frac{2}{x} + \frac{3}{x+2} = 1$

[A] 4 or -1 [B] -2

[C] 3 or -2 [D] -1

2.  $\frac{x}{x+2} - \frac{1}{3} = -\frac{2}{x+2}$

[A] 2 [B] 0 [C] no solution [D] -2

3.  $\frac{1}{2} + \frac{1}{x+1} = \frac{1}{3}$

[A] -4 [B] -7 [C] -9 [D] -6

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

5.  $\frac{3}{x} + \frac{7}{3x} = -5$

6.  $\frac{-4x}{x-3} + 8 = \frac{2x}{x-3}$

7.  $\frac{3}{a-3} - \frac{1}{a+2} = 0$

8.  $\frac{1}{2} + \frac{2}{x+3} = \frac{3}{4}$

9.  $\frac{x}{x^2-1} + \frac{1}{x-1} = \frac{1}{x+1}$

10. What are all the solutions of  $\frac{6}{x} - \frac{4}{(x+1)} = 1$ ?

[A] 3, 0 [B] 0 [C] 3, -2 [D] -2, 0

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11. Which inequality contains both of the solutions of the equation  $4x = 7 + \frac{2}{x}$ ?

[A]  $-2 \leq x < 0$     [B]  $-3 \leq x \leq -2$     [C]  $0 < x \leq 2$     [D]  $-3 \leq x \leq 2$     [E] none of the above

12. Compare the quantities in Column A and Column B.

<u>Column A</u>	<u>Column B</u>
the solution of the equation	the solution of the equation
$\frac{1}{3} + \frac{2}{x} = \frac{1}{x}$	$\frac{1}{3} - \frac{2}{x} = \frac{1}{x}$

- [A] The quantity in Column A is greater.                      [B] The quantity in Column B is greater.  
[C] The quantities are equal.  
[D] The relationship cannot be determined from the information given.

13. The function  $a = \frac{69.1}{p} - 2.3$  is a model that relates pressure  $p$  in inches of mercury to altitude  $a$  in miles above sea level. The altitude on top of Mt. Washington is about 6,288 ft. Estimate the atmospheric pressure. (Hint: 1 mi = 5280 ft)

14. The total resistance  $R$  for a parallel circuit is  $\frac{1}{R} = \left( \frac{1}{R_1} + \frac{1}{R_2} \right)$ . If  $R = 3$  ohms and  $R_1 = 5$  ohms, find  $R_2$ .

[1] A

[2] C

[3] B

[4] no solution

[5]  $x = -\frac{16}{15}$

[6] 12

[7]  $-\frac{9}{2}$

[8] 5

[9] -2

[10] C

[11] D

[12] B

[13] 19.8 in.

[14]  $\frac{15}{2}$  ohms